Digitized by the Internet Archive
in 2015

https://archive.org/details/b2227165x

With the Authors Compliment

Wallington

Surrey

ROYAL COLLEGE OF SURGEONS OF ENGLAND
18 APR 93
LIBRARY

ENGLISH CLIMATOLOGY 1881-1890.

By FRANCIS CAMPBELL BAYARD, F.R.Met.Soc.

(Plate IX.)

ROYAL COLLEGE
18 APR 93
LIBRARY

ENGLISH CLIMATOLOGY 1881-1890.

By FRANCIS CAMPBELL BAYARD, F.R.Met.Soc.

(Plate IX.)

[*From the* Quarterly Journal of the Royal Meteorological Society, Vol. XVIII. No. 84. October, 1892.]

With a view to obtain a series of reliable observations the Royal Meteorological Society, in 1875, organised a series of Second Order Stations at which observations are made at fixed hours, 9 a.m. and 9 p.m. The number of these stations being limited owing to the difficulty of finding suitable observers willing to take observations twice a day, the Society in 1880 organised a series of Climatological Stations at which observations are made at 9 a.m. only. The observations of these two sets of stations have been included in the Climatological portion in the *Meteorological Record*, and Mr. Ellis has shown that "monthly mean temperatures (mean of maximum and minimum) on the Climatological plan may be considered to be practically similar to means on the Second Order system."[1] As the time of the staff is fully occupied, I have, with the concurrence of the Council, undertaken to discuss the observations, and now submit the results for the ten years 1881-1890.

---

[1] *Quarterly Journal*, Vol. XVI. p. 219.

The Society's stations as given in the December part of the *Meteorological Record* for 1890 numbered 78, and on carefully going through these it was found that there were 52 of which the observations were sufficiently complete for the ten years to justify their reduction. A list of these stations, with their heights and the observers' names, is contained in Table I., the names of the Second Order Stations being printed in italics. The position of the stations is also shown on the map (Plate IX.).

At all stations Stevenson screens, or modifications thereof, 4 ft. above the ground, have been employed for the exposure of thermometers, excepting at Brampford Speke and Ilfracombe. At Brampford Speke the thermometers are mounted " in a wall screen fixed to a garden wall with a north aspect; the wall is about 10 ft. high and is whitewashed."[1] At Ilfracombe " the instruments are exposed in a large screen, like a summer house, the rain gauge being on the top and having a pipe with a tap below. The stand is about 6 ft. square, has large louvres half way down, and then lattice work; it is painted green, and has a slated pyramidal roof. It is placed over the shingle promenade of the Ilfracombe Hotel, and is 8 ft. or 10 ft. from the embankment, which rises about 16 ft."[2]

The rain gauges, as a rule, are 1 ft. above the ground except at Ilfracombe.

No change in the exposure of the instruments has been made at any of the stations except at Scarborough, Kenilworth, Norwood, Beddington, Marlborough, Ramsgate, Worthing, Portsmouth, Blackpool, Llandudno, Sidmouth, Teignmouth, and Falmouth, the particulars of which are given in Table I. In these excepted stations, the distances and difference in elevation being small, the observations have been treated as continuous throughout.

There are two stations where the records are incomplete, viz. Margate, with rain observations only for 1881, and Weymouth, which has no records at all for that year; but the observations for the remaining nine years were so good and complete that it was decided to interpolate in each case for that year. All the required interpolations were done in the Society's office by Mr. Marriott. With reference to Falmouth the observations for January to September 1881 were taken from the *Report of the Royal Cornwall Polytechnic Society;* and with reference to Londonderry for the years 1881-3, and to Dublin for the year 1881, the figures were taken from the *Observations of the Second Order Stations* published by the Meteorological Office, the Society's observations being merely a continuation of those previously taken and published of these respective stations. To Dr. Newsholme, the Society's observer at Brighton, I am indebted for the Brighton observations for 1881-8. And lastly, I must not forget my obligations to Mr. Marriott, whose valuable hints and knowledge of the stations and observers have greatly lightened my labours, and have tended to elucidate several points which at first sight seemed almost hopelessly obscure.

---

[1] *Quarterly Journal*, Vol. IX. p. 93.

[2] *Quarterly Journal*, Vol. VII. p. 109.

For the purpose of discussion I propose to divide this paper into four sections, viz. (1) Temperature; (2) Relative Humidity; (3) Amount of Cloud; (4) Rainfall. No correction has been applied for the effect of elevation above mean sea level, it being thought desirable to give the actual means at the different stations. Should anyone wish to reduce the temperatures to their equivalent sea-level values, this can readily be done by applying to the values given in this paper the approximate correction of +1°·0 for every 300 ft. of elevation above sea level.

TEMPERATURE.

Before going into details I would draw attention to two great facts which seem to underlie the whole of this portion, viz. (*a*) the great influence of the sea, and its tendency to increase the temperature of the sea coast stations in winter and diminish it in summer; and (*b*) the fact that the temperature rises much more rapidly than it falls, that is to say, that the average rise in temperature between April and July is from 12° to 17°, whilst the average fall between July and October is only from 8° to 13°. After October the temperature diminishes very rapidly, owing no doubt in part to the October and November rains.

With reference to the mean temperature at 9 a.m., Table II., I would remark that it gives a very close approximation to the mean temperature (the mean of the maximum and minimum), Table V., except during the months of May, June, July and August, when the 9 a.m. figure is generally higher than the mean. The difference, however, in no case exceeds 3°, and the general result is that the yearly mean temperature at 9 a.m. in no case varies from the yearly mean temperature more than 1°.

With respect to the mean temperature, Table V., we have in *January* the lowest (35°·1) at Buxton and the next lowest (36°·4) at Cheadle; then follow with a temperature between 36°·6 and 37°·5 two groups of inland stations, viz. Macclesfield, those in the Midland and Eastern Counties, with the exception of those in the Counties of Hereford and Gloucester, and also Lowestoft, and a small group on the Chalk Downs south of the Thames; then come, with a temperature between 37°·6 and 38°·5, the stations in the Northern Counties, the Hereford and Gloucestershire ones, Lowestoft, the stations in the vicinity of London, with Harestock, and Southampton; and I think that it will be somewhat surprising to learn that Blackpool, Scarborough, Lowestoft, and Southampton, have in January practically the same mean temperature as London. The next in the higher scale, that is between 38°·6 and 39°·5, are Margate, Ramsgate, Worthing, Portsmouth, Cullompton, and Brampford Speke; then come with a temperature between 39°·6 and 40°·5 the stations of Londonderry, Carmarthen, Weston-super-Mare, Southbourne, and Brighton; then with a temperature of from 40°·6 to 41°·5 Bude, Ashburton, Sidmouth, Weymouth, the Welsh station of Llandudno, which has the same mean temperature as Weymouth: then with a temperature between 41°·6 and 12°·5 the stations of Killarney, Dublin, Babbacombe, Teignmouth, and Ventnor ; and finally the very warm stations of Guernsey (43°·4), Ilfracombe (43°·3), and Falmouth (43°·6).

As to the mean minimum temperature, Table III., the three months January, February, and March are very much alike, and the general grouping is very similar to that given above, with the exception that the next lowest mean minimum after Buxton (30°·0) is found at Hillington (31°·5), and certain other minor differences, the principal being the warmth of Weston-super-Mare (36°·1), and the coldness of Carmarthen (34°·5). As to the mean maximum temperature, Table IV., there is a gradual increase during the first three months of about 1° per month.

In *April* the first great change occurs in the mean temperature, Table V., and we may say that with the exception of Hillington (45°·0) and Llandudno (45°·5), the whole of England and Wales north of latitude 52°·5 N. is cold, with a temperature not exceeding 44°·5; then come Llandudno, Hillington, Cheltenham, Kenilworth, and Aspley Guise, and the three stations of Marlborough, Swarraton, and Harestock, with a temperature between 44°·6 and 45°·5; then come, with the few exceptions hereinafter mentioned, all the stations south of latitude 52°·5 N. with Dublin, Londonderry, and Killarney, with a temperature between 45°·6 and 46°·5 ; then Regent's Park, Portsmouth, Ventnor, Brampford Speke, Falmouth, Ilfracombe, and Weston-super-Mare, with a temperature between 46°·6 and 47°·5, and lastly Teignmouth and Guernsey with a temperature between 47°·6 and 48°·5. The rise in temperature, as I have mentioned before, now becomes very rapid, and this culminates in July.

In *July* we have in the mean temperature, Table V., rather a singular state of things: Buxton as before is the coldest with 56°·8 ; then come with between 57°·6 and 58°·5 Scaleby, Seathwaite, Macclesfield, Cheadle, Churchstoke, Londonderry, and Killarney ; then with between 58°·6 and 59°·5, Scarborough, Belper, Blackpool, Llandudno, Carmarthen, Bude, Sidmouth, and Marlborough, a rather remarkable group ; then with between 59°·6 and 60°·5 come Dublin, Wakefield, Hodsock, Somerleyton, Lowestoft, Kenilworth, Cheltenham, Swarraton, Harestock, Southbourne, Cullompton, Babbacombe, Ilfracombe, Ashburton, and Falmouth ; then, with between 60°·6 and 61°·5, the whole of the remaining stations and Guernsey, except Regent's Park, Norwood, Strathfield Turgiss, and Portsmouth, which, with a temperature between 61°·6 and 62°·5, form the last group and have the highest mean temperature.

With respect to the July mean maximum, Table IV., we have the singular fact that the western stations, except Scaleby, with Killarney, Buxton, Cheadle, and Falmouth, with a temperature between 63°·6 and 65°·5, are the coldest; then come Scarborough, Scaleby, Macclesfield, Dublin, Londonderry, Sidmouth, and Guernsey, with between 65°·6 and 66°·5 ; then with between 66°·6 and 67°·5 come Belper, Churchstoke, Carmarthen, Weston-super-Mare, Babbacombe, Weymouth, Southbourne, Ventnor, Worthing, and Lowestoft; then with between 67°·6 and 68°·5 Wakefield, Kenilworth, Ashburton, Teignmouth, Swarraton, Harestock, Brighton, and Margate ; then with between 68°·6 and 69°·5 Hodsock, Somerleyton, Cheltenham, Marlborough, Cullompton, Brampford Speke, and Ramsgate; then with between 69°·6 and 70°·5, Hillington, Burghill, Aspley Guise, Croydon, and Southampton; then with between 70°·6 and 71°·5, Ross, Regent's Park, Norwood, Beddington, and Portsmouth; and lastly the warmest, Strathfield Turgiss, with 72°·1.

Mean temperature, Table IV., now falls more gradually than it has risen, and in *October* we have considerable changes. Buxton again has the coldest mean temperature, 41°·7, and then with a temperaturo between 45°·6 and 46°·5 come Macclesfield, Cheadle, Belper, and Churchstoke; then with between 46°·6 and 47°·5 come Scaleby, Seathwaite, Hodsock, Kenilworth, Cheltenham, Aspley Guise, Marlborough, and Swarraton; then with between 47°·6 and 48°·5, Scarborough, Wakefield, Blackpool, Hillington, Burghill, Ross, Croydon, Beddington, Strathfield Turgiss, Harestock, Brampford Speke, and Londonderry; then with between 48°·6 and 49°·5, Carmarthen, Cullompton, Southampton, Regent's Park, Norwood, Somerleyton, Lowestoft, Dublin, and Killarney; then with between 49°·6 and 50°·5, Llandudno, Ashburton, Babbacombe, Sidmouth, Southbourne, Worthing, Margate, and Ramsgate; then with between 50°·6 and 51°·5, all the remaining stations on the south and south-west coasts, except Ilfracombe, Falmouth, and Ventnor, which are between 51°·6 and 52°·5, and Guernsey (53°·0), the warmest station.

The mean temperature, Table V., now falls rapidly up to the end of the year, the fall being from 8° to 10° in two months.

In considering the yearly mean temperature, Table V., we have, as might be expected, the lowest 44°·7 at Buxton, and the next lowest 46°·2 at Cheadle; then come a long series of stations with low readings, between 46°·6 and 47°·5, comprising all the stations north of latitude 52° N. (except the three Irish stations, Llandudno, Wakefield, Burghill, and the three stations in the Eastern Counties), and Marlborough, and Swarraton; next with between 47°·6 and 48°·5 come Wakefield, Burghill, Cheltenham, the three stations in the Eastern Counties, Harestock, Beddington, and Londonderry; then with a temperature between 48°·6 and 49°·5 come the remaining two Irish stations, the two Welsh stations, Ross, Regent's Park, Norwood, Croydon, Margate, Ramsgate, Worthing, Southampton, Strathfield Turgiss, Southbourne, Sidmouth, Cullompton, and Brampford Speke; then with between 49°·6 and 50°5, Brighton, Portsmouth, Weymouth, Teignmouth, Babbacombe, Ashburton, Bude, and Weston-super-Mare; and finally with between 50°·6 and 51°·5, the stations of Ilfracombe, Falmouth, Ventnor, and Guernsey.

As to the yearly mean maximum temperature, Table IV., the lowest stations with between 51°·6 and 52°·5 are Scarborough, Seathwaite, Buxton, and Cheadle; then with between 52°·6 and 53°·5 come Blackpool, Macclesfield, and Belper; then with between 53°·6 and 54°·5, Scaleby, Wakefield, Llandudno, Churchstoke, Kenilworth, Somerleyton, and Lowestoft; then between 54°·6 and 55°·5 come Londonderry, Dublin, Hodsock, Hillington, Aspley Guise, Cheltenham, Weston-super-Mare, Ilfracombe, Sidmouth, Weymouth, Southbourne, Marlborough, Swarraton, Harestock, Worthing, Ramsgate, and Margate; and then with between 55°·6 and 56°·5 come all the remaining stations except Strathfield Turgiss, Southampton, and Portsmouth, which, with a temperature of between 56°·6 and 57°·5, form the last group.

The yearly mean minimum temperature, Table III., is very different from the above. Here again Buxton is the lowest with 37°·7; then comes Churchstoke with 39°·3; then with between 39°·6 and 40°·5 come Scaleby, Hodsock, Macclesfield, Cheadle, Belper, Cheltenham, Kenilworth, Aspley Guise, Hillington, Marlborough, Strathfield Turgiss, and Swarraton; then with between 40°·6 and 41°·5 come Seathwaite, Wakefield, Somerleyton, Beddington, Harestock, Southampton, Cullompton, Burghill, and Ross; then with between 41°·6 and 42°·5, Blackpool, Scarborough, Lowestoft, Regent's Park, Norwood, Croydon, Brampford Speke, Carmarthen, Londonderry, and Killarney; then with between 42°·6 and 43°·5, Ramsgate, Worthing, Portsmouth, Southbourne, Sidmouth, and Ashburton; then with between 43°·6 and 44°·5 Dublin, Llandudno, Weston-super-Mare, Bude, Babbacombe, Brighton, and Margate; then with between 44°·6 and 45°·5, Ventnor, Weymouth, and Teignmouth; then Falmouth with 45°·9; and lastly Ilfracombe and Guernsey with 46°·9.

Relative Humidity.

This branch of our subject, Table VI., need not detain us long, for owing to the very great uniformity there is not so much to say. In January Relative Humidity is higher in the Midland Counties than elsewhere, and varies from 94 at Aspley Guise, to 85 at Seathwaite and Llandudno; the months of May, June, and July are dry, the percentage of Relative Humidity being low especially in the neighbourhood of London. After July Relative Humidity gradually rises at all stations, but the distribution remains much the same, the Midland Counties having the highest percentage. As respects the mean yearly percentage I shall deal a little more in detail. If we look carefully at Table VI. we shall be struck with the fact that the percentage of Relative Humidity is lowest, comparatively, at our sea coast stations, with the exception of the three stations of Ilfracombe, Sidmouth, and Guernsey. This low percentage is probably due to the alternate land and sea breezes. Llandudno has the lowest percentage (79); this station is situate on a neck of land joining the Great Orme's Head with the main land, and consequently the wind is comparatively constant. I would call attention to the low Relative Humidity (81) at Seathwaite, a place well known as having one of the largest yearly rainfalls in the British Isles, a fact which would seem to show that a large rainfall has apparently little or no effect on the percentage of Relative Humidity. The percentage in the Thames Valley also seems low. The highest percentage occurs in a group of stations in the hilly district round Buxton.

I wish to emphasise the fact that the above remarks on Relative Humidity refer to 9 a.m. only; whether the same conclusions would be arrived at with observations at other hours of the day, I cannot say.

AMOUNT OF CLOUD.

This part of the subject again, Table VII., need not detain us long, for there is great uniformity in the figures. In January, which is the most cloudy month in every district, as appears from Table VII., the south-western district has most cloud. The amount gradually diminishes in all districts till we come to May, which seems to be the month of least cloud, the lowest amount being in the south district. From this month the amount rises slightly until the end of July and then falls somewhat for August, the southern district being the least cloudy. Thence the amount rises rather more rapidly till November, when our south-western districts seem to be the most cloudy. The amount then falls slightly for December.

In dealing with the yearly mean amount of cloud more at length, we shall at once be struck with the fact, that with the exceptions of Llandudno, Babbacombe, Sidmouth, and Guernsey, our sea coast stations have the least cloud, a fact specially noticeable in the cases of Weymouth and Worthing, which have 5·4 and 5·9 respectively: then in order, having between 6·0 and 6·4, the three neighbouring stations of Portsmouth, Ventnor, and Southbourne, and Ashburton; then, with between 6·5 and 6·9, we have Blackpool, Macclesfield, Cheadle, Dublin, Carmarthen, Ross, Ilfracombe, Bude, Falmouth, Teignmouth, Cullompton, Southampton, Ramsgate, Margate, Beddington, Norwood, Aspley Guise, Somerleyton, Lowestoft, Scarborough, and Guernsey; then, with 7·0 to 7·4, come Scaleby, Wakefield, Hodsock, Buxton, Llandudno, Killarney, Burghill, Cheltenham, Kenilworth, Hillington, Weston-super-Mare, Brampford Speke, Babbacombe, Sidmouth, Harestock, Swarraton, Strathfield Turgiss, Marlborough, and Croydon; and lastly, with from 7·5 to 7·9, come Seathwaite, Churchstoke, and Londonderry.

These remarks of course refer to the amount of cloud at 9 a.m. only. The largeness of the amount in the winter months as compared with the summer months is probably due to the fact that the morning mists in winter have not been dissipated by 9 a.m. The smallness of the amount at the coast stations is perhaps due to the sea breezes dispersing the morning mists earlier than they disappear at the inland stations.

RAINFALL.

In dealing with this last branch of our subject I am met with a difficulty, because gentlemen of far greater knowledge than myself have expressed the opinion that a ten-years mean in rainfall is of very little value. This I do not pretend to deny, and will only plead in extenuation that a ten years mean is better than none at all. The mean Rainfall is given in Table VIII.

In *January* the lowest rainfall between 1 and 2 inches occurs between latitudes 51° to 53° N., and longitude 2° E. to 1° W., that is in our Eastern and South-eastern Counties, and round about London. Between 2 and 3 inches we have nearly all the rest of the stations with Dublin, and Guernsey, except Seathwaite, Buxton, Carmarthen, Falmouth, Bude, Babbacombe,

TABLE I.—Stations and Observers.

Station.	County.	Height above Sea Level.	Observer.
England, N.E.		Ft.	
Scarborough	Yorkshire	130 160	F. Shaw. A. Rowntree. W. Robinson.
England, E.			
Hillington	Norfolk	88	Rev. H. E. B. Ffolkes, M.A., F.R.Met.Soc.
Somerleyton	Suffolk	50	Rev. C. J. Steward, M.A., F.R.Met.Soc.
Lowestoft	Suffolk	85	S. H. Miller, F.R.Met.Soc.
Midland Counties.			
Wakefield	Yorkshire	96	H. Clarke, L.R.C.P., F.R.Met.Soc.
Hodsock, Worksop	Notts	56	H. Mellish, J.P., F.R.Met.Soc.
Buxton	Derby	987	E. J. Sykes, M.B. W. H. Beck.
Belper	Derby	344	J. Hunter, F.R.Met.Soc.
Cheadle, Tean	Stafford	646	J. C. Philips, J.P.
Churchstoke	Montgomery	540	P. Wright, F.R.Met.Soc.
Burghill	Hereford	275	T. A. Chapman, M.D.
Ross	Hereford	213	H. Southall, F.R.Met.Soc.
Cheltenham	Gloucester	184	R. Tyrer, B.A., F.R.Met.Soc.
Kenilworth	Warwick	290 300	F. Slade, F.R.Met.Soc. T. G. Hawley, F.R.Met.Soc.
Aspley Guise, Woburn	Bedford	410	E. E. Dymond, J.P., F.R.Met.Soc.
England, S.			
Regent's Park	London	125	W. Sowerby, F.R.Met.Soc.
Norwood	Surrey	184 220	W. Marriott, F.R.Met.Soc.
Croydon, Addiscomb	Surrey	201	E. Mawley, F.R.Met.Soc.
Beddington	Surrey	102 120	S. Rostron, J.P., F.R.Met.Soc.
Marlborough	Wilts	471 424	Rev. T. A. Preston, M.A., F.R.Met.Soc. C. E. B. Hewitt, B.A.
Strathfield Turgiss	Hants	197	Rev. C. H. Griffith.
Swarraton, Alresford	Hants	310	Rev. W. L. W. Eyre, M.A., F.R.Met.Soc.
Harestock, Winchester	Hants	300	Lt.-Col. H. S. Knight, F.R.Met.Soc.
Southampton, Highfield	Hants	136	Rev. H. Garrett, M.A., F.R.Met.Soc.
Margate	Kent	83	J. Stokes, F.R.Met.Soc.
Ramsgate	Kent	105 90	Revs. T. E. Egan, & J. S. Swanson, O.S.B. M. Jackson, J.P., F.R.Met.Soc.
Brighton	Sussex	31	A. Newsholme, M.D.
Worthing	Sussex	21 33	W. J. Harris, M.R.C.S., F.R.Met.Soc.
Portsmouth	Hants	20 18	R. E. Power, L.R.C.P. B. H. Mumby, M.D., F.R.Met.Soc.
Ventnor	Isle of Wight	80	J. Codling, H. Sager, and H. Cleeland.
Southbourne-on Sea	Hants	90	T. A. Compton, B.A., M.D., F.R.Met.Soc.
Weymouth	Dorset	79	T. B. Groves, F.R.Met.Soc.
Scotland, W.			
Scaleby	Cumberland	111	R. A. Allison, M.P., J.P., F.R Met.Soc.
England, N.W.			
Seathwaite	Cumberland	422	W. Dixon and Mrs. Hughes.
Blackpool	Lancashire	31 62	Rev. C. T. Ward, B.A. J. Wolstenholme, Assoc.M.Inst.C.E.
Macclesfield	Cheshire	501	J. Dale and C. Roscoe.
Llandudno	Carnarvon	79 88	J. Nicol, M.D., J.P., F.R.Met.Soc.
England, S.W.			
Carmarthen	Carmarthen	188	G. J. Hearder, M.D.
Weston-super-Mare	Somerset	20	W. E. Perrett.

TABLE I.—Stations and Observers—*Continued.*

Station.	County.	Height above Sea Level.	Observers.
England, SW.—*Cont.*		Ft.	
Ilfracombe	Devon	25	M. W. Tattam.
Bude	Cornwall	16	J. Arthur.
Cullompton	Devon	202	T. Turner, J.P., F.R.Met.Soc.
Brampford Speke	Devon	113	W. H. Gamlen and Miss M. B. Gamlen.
Sidmouth	Devon	186 148	W. T. Radford, M.D., F.R.Met.Soc.
Teignmouth	Devon	50 70	W. C. Lake, M.D.
Babbacombe	Devon	293	E. E. Glyde, F.R.Met.Soc.
Ashburton	Devon	584	F. Amery, J.P.
Falmouth	Cornwall	210 175	W. L. Fox, F.R.Met.Soc.
		167	E. Kitto, F.R.Met.Soc.
Ireland.			
Londonderry	Londonderry	74	J. Conroy, F.R.Met.Soc.
Dublin	Dublin	54	J. W. Moore, M.D., F.R.Met.Soc.
Killarney	Kerry	91	Ven. Archdeacon Wynne, M.A., F.R.Met.Soc.
Channel Islands.			
Guernsey	Channel Isles	180	F. E. Carey, M.D., F.R.Met.Soc.

Note.—The names of the Second Order Stations are printed in *italics*.

Cullompton, Ashburton, and the two Irish stations of Londonderry and Killarney; between 3 and 4 inches we have Bude, Babbacombe, Cullompton, and Londonderry; between 4 and 5 inches, Buxton, Carmarthen, and Falmouth; and over 5 inches we have Ashburton (5·15 ins.), Killarney (7·38 ins.), and the wet station of Seathwaite (13·58 ins.).

In *April*, which, contrary to what might be imagined, seems to be in all districts nearly, if not quite, the driest month, we have a fall of between 1 and 2 inches over very nearly the whole of England, with Londonderry and Guernsey, except at the following stations, which have a greater fall; between 2 and 3 inches are Falmouth, Babbacombe, Teignmouth, Sidmouth, Brampford Speke, Cullompton, Marlborough, Ross, Carmarthen, Churchstoke, Belper, Buxton, Wakefield, Scarborough, and Dublin; between 3 and 4 inches we have Ashburton and Killarney; and over 4 inches we have Seathwaite (6·43 ins.). As a rule the rainfall seems gradually to diminish between January and April.

From April to July the rainfall seems to increase gradually, so that in July we have only one station with a rainfall below 2 inches, viz. Weymouth; between 2 and 3 inches we have nearly the whole of England, with Dublin, and Guernsey, except the stations after mentioned; between 3 and 4 inches are Falmouth, Ashburton, Cullompton, Hillington, Macclesfield, Blackpool, Scaleby, and the Irish stations of Londonderry and Killarney; and over 4 inches we have Carmarthen (4·61 ins.), Buxton (4·43 ins.), and Seathwaite (11·44 ins.).

TABLE II.—Mean Temperature at 9 a.m. 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
England, N.E.	°	°	°	°	°	°	°	°	°	°	°	°	°
Scarborough	38·1	38·9	40·4	44·9	51·2	56·6	60·5	59·3	55·5	48·4	43·3	38·2	47·9
England, E.													
Hillington	35·6	37·5	40·2	46·8	54·4	59·9	62·6	61·4	57·1	48·1	42·2	36·1	48·5
Somerleyton	36·9	38·1	40·4	45·8	53·1	58·2	62·1	61·1	57·6	49·6	43·7	37·5	48·7
Lowestoft	37·5	38·4	40·4	45·7	52·7	58·1	62·3	61·5	58·1	50·1	44·0	38·0	48·9
Midland Counties.													
Wakefield	37·6	38·3	39·4	44·6	52·2	57·4	60·6	59·0	55·0	47·2	42·6	37·4	47·6
Hodsock...........	36·1	37·9	40·2	45·7	52·9	58·5	61·6	59·8	55·6	47·7	41·9	36·2	47·8
Buxton	34·8	35·6	37·5	42·4	50·3	55·7	58·2	56·8	53·3	45·3	40·4	34·7	45·4
Belper	36·0	37·3	38·7	43·9	51·1	56·5	59·3	57·3	53·4	45·7	41·6	36·4	46·4
Cheadle..........	35·1	35·8	37·7	42·9	50·0	55·3	57·7	56·2	53·1	45·3	40·8	35·3	45·4
Churchstoke.....	36·9	37·9	39·6	44·3	51·7	57·2	59·8	58·4	54·7	47·3	42·8	36·9	47·3
Burghill..........	36·8	38·3	41·0	45·9	53·7	59·5	62·4	61·1	56·0	47·6	43·0	36·8	48·5
Ross	37·6	38·9	41·8	46·6	54·4	60·4	63·0	61·8	56·7	48·6	44·0	37·7	49·3
Cheltenham	37·6	38·5	40·6	46·0	53·2	58·6	61·5	60·7	55·8	47·5	43·5	37·8	48·4
Kenilworth	36·2	37·3	39·4	44·7	52·3	57·7	60·8	59·4	54·9	46·7	41·9	36·3	47·3
Aspley Guise	36·4	37·3	40·3	45·7	53·8	59·0	62·7	61·3	56·5	48·3	42·8	36·3	48·4
England, S.													
Regent's Park	37·9	38·5	40·2	46·3	54·1	59·4	62·5	61·0	56·6	47·8	43·9	38·1	48·9
Norwood	37·5	38·3	40·7	46·8	54·7	60·0	63·1	61·6	57·1	48·3	43·5	37·5	49·1
Croydon..........	37·2	38·1	40·2	46·2	54·1	59·1	62·4	61·2	56·6	48·1	43·5	37·2	48·7
Beddington	36·9	37·9	40·2	46·5	54·5	59·9	63·3	61·6	56·8	47·6	43·1	36·8	48·8
Marlborough.......	36·2	37·2	39·4	45·0	52·8	58·3	61·6	60·5	55·7	46·8	41·9	36·2	47·6
Strathfield Turgiss	37·1	38·6	41·1	47·0	55·0	60·1	63·3	62·0	57·0	47·8	43·3	37·1	49·1
Swarraton........	36·6	37·6	39·6	45·1	52·9	57·9	60·8	60·1	55·8	47·4	42·5	36·9	47·8
Harestock	37·1	37·9	40·2	45·8	53·3	58·4	61·5	60·8	56·5	48·1	43·4	37·2	48·4
Southampton	37·9	39·1	41·4	47·2	54·8	60·2	62·6	62·1	57·5	49·4	44·4	38·2	49·6
Margate..........	38·3	39·1	41·2	46·5	53·4	58·5	62·3	62·0	58·6	50·2	45·1	39·2	49·5
Ramsgate	38·2	39·2	41·2	46·7	53·7	59·0	62·6	62·4	58·9	50·3	44·9	39·0	49·7
Brighton	39·6	40·0	41·6	47·1	55·7	60·2	63·0	63·4	59·4	51·8	46·2	40·2	50·7
Worthing	38·8	39·6	41·3	47·0	54·4	59·4	62·2	62·3	58·9	50·8	45·7	39·5	50·0
Portsmouth	39·3	39·8	41·6	47·0	54·9	60·0	63·1	62·8	58·5	50·4	45·6	39·8	50·2
Ventnor..........	41·1	41·1	43·0	47·4	54·2	59·1	61·9	62·6	59·5	52·5	47·7	42·0	51·0
Southbourne	39·2	39·7	41·4	47·0	54·0	59·1	62·2	62·3	58·1	50·2	45·4	39·7	49·9
Weymouth	41·4	41·2	42·3	46·5	53·1	58·3	61·5	61·8	58·1	51·6	47·5	42·0	50·4
Scotland, W.													
Scaleby	36·9	37·3	39·0	44·9	51·8	57·2	58·9	58·0	54·5	46·9	41·4	36·4	46·9
England, N.W.													
Seathwaite........	38·0	37·4	38·0	43·9	51·2	57·2	58·1	56·9	53·5	46·4	42·1	37·9	46·7
Blackpool	38·1	38·7	40·3	45·7	52·3	57·7	59·7	59·2	56·2	49·0	43·9	38·5	48·3
Macclesfield	36·2	36·4	37·9	43·2	50·9	56·0	58·2	56·7	53·3	45·4	41·4	36·0	46·0
Llandudno........	41·3	41·3	42·2	46·5	52·9	58·1	60·3	59·8	57·4	50·7	46·5	41·5	49·9
England, S.W.													
Carmarthen	39·6	40·8	42·8	48·2	54·9	60·6	62·0	61·2	57·9	50·3	45·5	39·5	50·3
Weston-super-Mare	39·9	40·0	41·8	46·5	53·4	58·8	61·9	61·3	57·6	50·2	45·8	40·3	49·8
Ilfracombe.........	43·3	43·0	44·0	47·3	52·8	57·9	61·0	61·3	58·8	52·9	48·8	43·8	51·2
Bude	41·3	40·7	42·1	46·9	53·4	58·2	60·6	61·0	57·4	50·7	47·1	41·7	50·1
Cullompton	39·0	39·6	41·9	47·0	54·4	60·0	62·3	61·8	57·3	49·3	44·6	38·7	49·7
Brampford Speke..	39·0	39·6	41·7	47·3	54·7	60·0	62·3	60·9	56·4	48·7	44·6	38·7	49·5
Sidmouth	40·4	40·3	41·7	46·0	52·9	57·8	60·5	60·6	56·9	50·0	46·2	40·8	49·5
Teignmouth	41·4	41·1	42·8	47·9	54·5	59·6	62·3	62·1	58·0	50·4	46·6	41·3	50·7
Babbacombe......	41·2	41·2	43·1	47·0	53·5	59·2	62·2	62·1	57·9	51·4	46·8	41·4	50·6
Ashburton........	40·4	40·4	42·7	47·2	53·6	59·3	61·4	61·1	57·4	50·9	46·1	40·7	50·1
Falmouth	43·4	42·9	44·2	47·9	53·6	58·9	61·4	61·4	58·4	52·5	48·5	43·7	50·4
Ireland.													
Londonderry	39·4	40·0	41·6	46·7	53·5	58·2	59·6	58·2	54·9	48·0	43·2	39·3	48·6
Dublin	40·8	41·2	42·2	46·4	53·4	58·6	60·4	59·0	55·5	48·7	45·0	40·2	49·3
Killarney	42·4	42·3	43·4	47·2	52·9	58·2	59·8	58·9	56·0	50·1	46·1	41·1	49·9
Channel Islands.													
Guernsey	42·8	42·6	44·0	47·5	53·3	57·6	60·8	61·5	59·1	52·8	48·8	43·8	51·2

TABLE III.—Mean Minimum Temperature, 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
England, N.E.	°	°	°	°	°	°	°	°	°	°	°	°	°
Scarborough	34·5	35·3	35·3	38 7	43·7	49·4	52·6	52·0	49·8	43·9	39.5	34·6	42·4
England, E.													
Hillington	31·5	32·6	32·7	36·7	42·2	47·5	50·9	50·0	47·4	41·0	37·1	31·9	40·1
Somerleyton	32·2	33·3	33·5	37·9	43·4	48·8	52·0	51·5	49·9	42·9	38·6	32·7	41·4
Lowestoft	33·8	34·3	34·5	38·7	43·9	49·3	52·5	52·4	50·7	43·5	39·3	34·0	42·2
Midland Counties.													
Wakefield	33·8	34·0	33·9	37·1	42·6	48·0	51·5	50·4	47·3	41·7	37·8	33·5	41·0
Hodsock	31·6	33·1	32·9	36·2	41·7	47·3	50·9	49·4	46·6	40·6	36·9	31·7	39·9
Buxton	30·0	30·6	30·0	34·1	39·5	44·9	48·4	47·3	44·1	38·7	34·8	29·7	37·7
Belper	31·8	33·3	33·0	37·1	42·7	48·2	51·5	50·3	47·4	40·6	37·3	32·0	40·4
Cheadle	31·9	32·5	32·7	36·3	41·9	47·5	50·4	49·5	47·1	40·5	37·0	31·7	39·9
Churchstoke	31·9	32·7	32·2	35·4	40·7	46·2	49·3	48·3	45·7	39·8	36·9	32·0	39·3
Burghill	32·5	33·6	34·0	37·4	43·1	48·4	51·2	50·0	47·0	40·5	38·1	32·5	40·7
Ross	33·1	33·8	34·2	37·8	43·3	48·8	52·0	50·7	47·6	41·0	38·8	33·2	41·2
Cheltenham	32·4	32·9	33·1	36·8	42·5	48·1	51·2	49·7	46·9	39·8	37·7	32·7	40·3
Kenilworth	31·7	33·1	33·0	36·7	42·3	47·8	51·4	49·9	47·2	40·2	37·2	32·1	40·2
Aspley Guise	32·0	32·5	32·9	36·5	42·1	47·9	51·4	50·5	47·7	40·9	37·4	31·7	40·3
England, S.													
Regent's Park	33·8	34·4	34·8	38·9	44·9	50·5	53·8	52·9	49·7	42·3	39·2	33·7	42·4
Norwood	34·0	34·6	34·6	38·4	44·2	50·1	53·2	52·3	49·4	42·1	38·9	33·8	42·1
Croydon	33·3	34·1	34·4	38·1	44·0	49·6	52·9	52·0	49·1	41·7	38·9	33·1	41·8
Beddington	32·3	33·6	33·5	37·2	42·8	48·4	51·6	50·5	47·8	40·5	37·6	32·2	40·7
Marlborough	32·2	33·0	32·5	36·4	42·0	47·4	50·3	49 1	46·1	39·3	36·8	31·6	39·7
Strathfield Turgiss	31·8	33·4	33·0	36·7	42·5	48·2	51·1	50·9	47·3	40·1	37·3	31·8	40·3
Swarraton	32·0	33·2	32·8	36·4	42·0	47·5	50·9	49·8	47·1	40·0	37·3	32·1	40·1
Harestock	32·8	33·5	33·1	36·8	42·5	48·1	51·3	50·7	47·9	40·9	37·9	32·9	40·7
Southampton	32·6	33·9	33·5	37·3	43·1	48·4	51·6	50·6	48·1	40·9	38·0	32·9	40·9
Margate	34·8	35·4	35·9	40·1	45·6	51·1	54·0	54·4	52·4	44·9	40·5	35·1	43·7
Ramsgate	34·4	35·0	35·6	40·1	45·5	50·7	53·6	53·6	52·0	44·3	40·4	34·7	43·3
Brighton	35·0	36·0	35·6	40·3	46·4	51 6	55·1	54·8	52·3	44·7	42·2	36·2	44·2
Worthing	34·5	35·6	35·3	39·8	45·9	50·9	54·2	53·9	51·6	44·0	40·8	35·2	43·5
Portsmouth	33·8	34·9	35·1	38·8	45·3	50·4	53·7	53·7	50·8	43·7	40·6	35·2	43·0
Ventnor	37·4	37·7	37·6	41·2	47·1	51·8	55·3	55·8	53·7	47·0	43·7	38·2	45·5
Southbourne	35·5	35·7	35·4	38·9	44·8	50·3	53·5	52·7	50·0	43·4	40·8	35·6	43·1
Weymouth	37·1	37·2	37·2	40·6	46·3	51·5	54·6	54·8	52·6	46·0	43·2	37·7	44·9
Scotland, W.													
Scaleby	32·5	33·1	33·0	36·1	41·4	46·6	49·8	49·1	46·3	40·3	36·3	31·6	39·7
England, N.W.													
Seathwaite	33·9	33·8	33·6	37·5	42·9	48·4	51·3	50·4	47·5	41·3	38·1	33·4	41·0
Blackpool	33·5	34·5	34·6	37·6	43·2	48·8	52·8	52·1	49·2	43·1	39·1	33·9	41·9
Macclesfield	32·2	33·0	32·9	36·8	42·4	47·6	50·9	50·2	47·3	40·4	37·4	32·0	40·3
Llandudno	37·0	36·8	36·8	39·8	45·2	50·6	53·7	53·3	50·9	45·4	41·7	37·2	44·0
England, S.W.													
Carmarthen	34·5	35·3	35·0	38·4	44·2	49·2	51·9	50·6	48·4	42·3	39·6	34·5	42·0
Weston-super-Mare	36·1	36·2	36·7	40·4	46·2	51·7	55·1	54·4	51·3	45·3	41·8	36·3	44·3
Ilfracombe	39·4	39·4	39·6	42·7	47·8	53·1	55·7	56·5	54·0	48·6	45·2	40·3	46·9
Bude	36·4	36·3	36·5	39·6	45·1	50·1	53·5	52·8	50·3	44·7	42·4	36·9	43·7
Cullompton	33·9	34·5	34·3	37·7	43·0	48·3	51·2	49·8	47·2	41·3	39·0	33·5	41·1
Brampford Speke	34·0	34·7	34·7	38·3	44·3	49·8	52·5	51·2	48·0	41·9	39·1	33·9	41·9
Sidmouth	36·2	36·5	36·2	39·4	45·0	50·1	53·1	52·7	50·3	44·4	41·7	36·6	43·5
Teignmouth	37·4	37·3	37·2	41·0	46·4	51·7	54·6	53·9	51·2	45·1	42·5	37·2	44·6
Babbacombe	37·2	36·9	36·6	40·0	45·4	50·6	53·3	52·9	50·5	44·5	41·9	37·1	43·9
Ashburton	36·2	36·1	36·0	39·5	45·0	50·3	53·0	52·7	50·2	44·5	41·5	36·4	43·5
Falmouth	39·8	39 1	39·1	41·9	46 8	51·8	54·4	54·5	52·4	47·2	44·5	39·8	45·9
Ireland.													
Londonderry	35·2	35·5	35·6	38·2	43·0	48·1	50·6	50·1	47·2	42·2	38·4	34·7	41·6
Dublin	37·3	37·5	36·8	40·4	45·6	51·0	53·7	52·8	49·9	44·1	41·1	36·5	43·9
Killarney	36·9	36·4	36·2	38·2	43·3	48·4	51·0	51·1	47·9	42·3	40·2	35·2	42·3
Channel Islands.													
Guernsey	39·7	39·9	40·1	43·2	47·7	51·9	55·1	55·8	54·4	48·7	45·7	40·7	46·9

TABLE IV.—Mean Maximum Temperature, 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
ENGLAND, N.E.	°	°	°	°	°	°	°	°	°	°	°	°	°
Scarborough	42·2	43·2	45·6	49·1	55·7	61·2	65·6	64·2	60·4	52·8	47·5	42·1	52·5
ENGLAND, E.													
Hillington	41·5	43·8	47·7	53·2	61·2	67·1	70·5	69·0	63·9	54·8	47·8	41·3	55·2
Somerleyton	42·7	43·6	47·1	51·2	59·0	64·1	68·8	67·6	63·5	55·3	48·9	42 7	54·5
Lowestoft	42·6	43·3	46·0	49·8	57·0	62·9	67·4	66·8	63·3	55·3	49·2	42·7	53·9
MIDLAND COUNTIES.													
Wakefield	43 2	44·1	46·4	51·7	59·9	65·1	67·7	66·6	62·2	53·8	48·7	42·7	54·3
Hodsock	42·7	44·5	47·7	52·8	60·5	66·0	69·0	67 6	63·3	54·5	48·4	42·3	54·9
Buxton	40·1	41·3	43·6	49·6	57·1	63·0	65·1	63·9	59·8	50·6	45·4	39·8	51 6
Belper	41·5	42·9	46 1	51·7	59·1	64·7	67·2	65·6	61·2	52·5	47·1	41·3	53·4
Cheadle	40·9	42·3	45·1	51·0	58·1	63·3	65·5	64·4	60·6	51·8	46·5	40·5	52·5
Churchstoke	42·7	43·9	46·3	52·1	59·0	64·8	66·9	66·2	61·9	53·3	48·2	42·5	54·0
Burghill	43·7	45·4	48·9	54·6	62·3	67·9	70·4	69·4	64·4	55·3	49·4	43·4	56·3
Ross	43·6	45·5	49·2	55·1	62·7	68·6	70·8	69·9	64 6	55·2	49·5	43·3	56·5
Cheltenham	42·8	44·5	47·5	53·6	61·1	66·9	69·2	68·4	63·7	54·4	49·1	42·7	55·3
Kenilworth	41·8	43·4	46 9	52·4	59·9	65·8	68·5	67·2	62·9	53·8	47·7	41·5	54·3
Aspley Guise	41·4	43·0	47·1	53·1	60·7	66·6	69·9	68·6	63·6	54·0	47·5	41·0	54·7
ENGLAND, S.													
Regent's Park	42·9	44·1	48·1	54·3	62·1	68·1	71·0	70·0	64·9	55·2	49·2	42·9	56·1
Norwood	42·8	44·3	48·3	54·3	62·5	68 1	71 2	70·1	65·1	55·6	49·2	42·7	56·2
Croydon	42·9	44·0	47 9	53·9	61·6	67·0	70·0	69·3	64·4	55·2	49·2	42·8	55·7
Beddington	42·8	43·9	48·1	54·1	62·2	67·9	71·1	70·1	64·7	55·2	49·2	42·4	56·0
Marlborough	42·3	43·7	47·2	53·0	60·4	66·1	68·6	68·0	63·3	54·4	48·1	42·0	54·8
Strathfield Turgiss	43·2	45·1	49·3	55·6	63·4	69·0	72·1	70·8	65·7	56·3	49 6	43·0	56 9
Swarraton	42·5	43·8	47·2	53·3	60·5	65·7	68·3	67·8	63·2	54·6	48·7	42·4	54·8
Harestock	42·6	44·1	47·6	53·5	60 3	66·0	68·5	68·1	63·7	55·1	49·1	42·8	55·1
Southampton	43·9	45·4	49·0	55·2	62·2	67·9	69·9	69·5	65·1	56·5	50·2	43·8	56·6
Margate	43·1	43·6	46·7	51·2	58·6	64·0	68·5	67·8	63·6	55·2	49·7	43·5	54·6
Ramsgate	43·5	44·0	47·2	52·6	59·7	65·1	69·0	68·4	64·4	55·6	50·1	43·5	55·3
Brighton	44·8	44·9	47·6	52·3	60·4	65·4	67·9	66·9	64·0	56·8	51·8	45·8	55·7
Worthing	43·5	44·4	47·3	52·6	59·5	64·6	67·0	67·4	64·6	56·4	50·3	44·0	55·1
Portsmouth	44·4	45·4	48·8	54·6	62·2	68·0	70·7	70·4	66·1	57·6	51·1	44·6	57·0
Ventnor	45·7	46·1	48·6	53·4	59·6	64·8	67·0	67·9	64·6	57·2	51·9	46·4	56·1
Southbourne	44·2	45·1	47·9	53·1	59·3	64·7	67·5	68·0	64·1	56·3	50·5	44 7	55·5
Weymouth	45·7	45·3	47·5	51·9	58·3	63·8	66·8	66·9	63·4	56·2	51·2	45·9	55·2
SCOTLAND, W.													
Scaleby	42·6	43·9	46·3	51·8	59·2	64·9	66·2	65·0	62·0	53·3	47·5	41·8	53·7
ENGLAND, N.W.													
Seathwaite	42·2	43·0	44·6	50·9	58·1	63·8	63·8	63·3	60·0	52·3	46·5	42·0	52 5
Blackpool	42·5	43·3	45·0	50·9	57·5	62·5	64·3	63·7	60·9	53·4	48 1	42·7	52·9
Macclesfield	41·6	42·5	45·1	51·1	58·7	64·3	65·8	64·8	61·0	52·2	47·0	41·1	52·9
Llandudno	45·6	45·6	46·8	51·1	57·5	62·7	64·8	64·2	61·5	54·5	50·4	45·5	54·2
ENGLAND, S.W.													
Carmarthen	44·9	46·4	48·6	54·1	59·9	65·3	66·6	66·7	63·6	56·0	50·8	45·2	55·7
Weston-super-Mare	44·9	45·8	48·0	53·1	59·5	64·8	66·9	67·0	63·8	56·0	50·7	45·0	55·5
Ilfracombe	47·2	46·8	47·9	51·9	58·0	62·5	64 9	65·2	62·5	56·4	52·4	47·6	55·3
Bude	46 4	46·8	48·4	53·3	58·8	63·8	65·3	65·9	63·5	56·7	51·7	46·8	55·6
Cullompton	45 0	45·9	48·9	54·3	61·4	66·9	68·9	68·3	64·3	56·2	50·5	44·8	56·3
Brampford Speke	44·8	45·8	49·0	55·0	62·1	67·1	68·9	67·3	62·9	55·0	50·3	44·4	56·1
Sidmouth	45·5	45·5	47·5	52·1	58·1	63·3	65·7	66·0	62·6	55·7	51·0	45·8	54·9
Teignmouth	46·3	46·4	49·4	54·2	60·3	65·7	67·6	67·9	64·5	56·7	51·6	46·5	56·4
Babbacombe	46·0	46·2	48·3	52·7	58·8	65·0	67·4	67·4	63·3	56·4	51·4	46·4	55·8
Ashburton	45·6	46·1	48·7	53·3	59·8	65·6	67·8	67·3	63·6	56·5	51·4	46·0	56·0
Falmouth	47 3	46 9	48·4	51·8	57·5	63·2	65·4	65 3	62·1	56·1	52·1	47·7	55·3
IRELAND.													
Londonderry	45·5	46·6	48·7	54·1	60·4	65·3	65·9	64·7	61·8	54·5	49 4	45·0	55·2
Dublin	46·0	46·5	48·1	52·2	58·8	64·2	66 1	64·9	61·1	54·2	50·1	45·3	54·8
Killarney	47·8	48·2	49·4	53·3	58·6	64·1	65·1	64·9	61·7	55·7	51·6	47·3	55·6
CHANNEL ISLANDS.													
Guernsey	47·0	46·6	48·9	52·8	59·1	63·2	66·5	67·1	64·4	57·3	52·8	47·7	56·1

TABLE V.—MEAN TEMPERATURE, 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
ENGLAND, N.E.	°	°	°	°	°	°	°	°	°	°	°	°	°
Scarborough	38·4	39·2	40·4	43·9	49·7	55·3	59·1	58·2	55·1	48·3	43·5	38·4	47·5
ENGLAND, E.													
Hillington	36·6	38·2	40·1	45·0	51·7	57·3	60·8	59·4	55·6	47·9	42·5	36·6	47·6
Somerleyton	37·5	38·4	40·3	44·5	51·2	56·4	60·4	59·6	56·8	49·1	43·8	37·7	48·0
Lowestoft	38·2	38·8	40·3	44·2	50·5	56·1	59·9	59·6	57·0	49·4	44·3	38·3	48·1
MIDLAND COUNTIES.													
Wakefield	38·5	39·0	40·2	44·5	51·2	56·5	59·7	58·5	54·7	47·7	43·2	38·1	47·7
Hodsock	37·1	38·9	40·2	44·5	51·1	56·7	59·9	58·6	54·9	47·5	42·7	37·0	47·4
Buxton	35·1	35·9	36·8	41·9	48·3	53·9	56·8	55·5	52·0	44·7	40·2	34·7	44·7
Belper	36·7	38·1	39·5	44·4	50·9	56·5	59·3	58·0	54·3	46·5	42·2	36·6	46·9
Cheadle	36·4	37·4	39·0	43·6	50·0	55·3	58·0	56·9	53·9	46·2	41·2	36·1	46·2
Churchstoke	37·3	38·3	39·2	43·7	49·9	55·5	58·1	57·3	53·8	46·5	42·6	37·2	46·6
Burghill	38·1	39·6	41·3	46·1	52·7	58·2	60·7	59·7	55·7	47·9	43·8	37·9	48·5
Ross	38·4	39·6	41·7	46·5	53·0	58·7	61·4	60·3	56·1	48·1	44·2	38·2	48·9
Cheltenham	37·6	38·7	40·3	45·2	51·8	57·4	60·3	59·0	55·3	47·1	43·4	37·7	47·8
Kenilworth	36·8	38·2	40·0	44·6	51·0	56·9	59·9	58·6	55·0	47·0	42·5	36·7	47·3
Aspley Guise	36·7	37·8	40·0	44·8	51·4	57·3	60·6	59·6	55·6	47·5	42·4	36·3	47·5
ENGLAND, S.													
Regent's Park	38·4	39·3	41·4	46·6	53·5	59·3	62·4	61·4	57·3	48·7	44·3	38·3	49·2
Norwood	38·4	39·5	41·4	46·4	53·3	59·1	62·2	61·2	57·2	48·9	44·1	38·2	49·2
Croydon	38·2	39·1	41·1	46·0	52·7	58·3	61·5	60·7	56·7	48·4	44·0	38·0	48·7
Beddington	37·6	38·8	40·8	45·7	52·5	58·1	61·3	60·3	56·2	47·9	43·3	37·4	48·3
Marlborough	37·2	38·4	39·9	44·7	51·2	56·7	59·5	58·5	54·7	46·8	42·5	36·8	47·2
Strathfield Turgiss	37·5	39·2	41·2	46·1	53·0	58·6	61·6	60·9	56·4	48·2	43·4	37·4	48·6
Swarraton	37·3	38·5	40·0	44·9	51·1	56·7	59·6	58·8	55·2	47·2	43·0	37·3	47·5
Harestock	37·7	38·8	40·3	45·2	51·4	57·1	59·9	59·4	55·8	48·0	43·5	37·9	47·9
Southampton	38·3	39·7	41·2	46·2	52·6	58·2	60·7	60·1	56·6	48·7	44·1	38·4	48·7
Margate	38·9	39·6	41·2	45·7	52·1	57·5	61·3	61·0	58·0	50·1	45·1	39·4	49·2
Ramsgate	39·0	39·5	41·5	46·3	52·6	57·9	61·3	61·0	58·2	50·0	45·2	39·1	49·3
Brighton	39·9	40·5	41·6	46·3	53·3	58·5	61·5	60·9	58·1	50·8	47·0	41·0	50·0
Worthing	39·0	40·0	41·3	46·2	52·8	57·7	60·6	60·7	58·1	50·1	45·6	39·6	49·3
Portsmouth	39·1	40·2	41·9	46·7	53·7	59·3	62·2	62·1	58·4	50·6	45·9	39·9	50·0
Ventnor	41·6	41·9	43·1	47·4	53·3	58·3	61·2	61·8	59·1	52·1	47·8	42·3	50·8
Southbourne	39·9	40·4	41·6	46·0	52·1	57·5	60·5	60·4	57·0	49·8	45·6	40·2	49·3
Weymouth	41·4	41·3	42·3	46·2	52·3	57·7	60·7	60·9	57·9	51·2	47·1	41·8	50·1
SCOTLAND, W.													
Scaleby	37·6	38·5	39·5	44·0	50·3	55·7	58·1	57·1	54·1	46·8	41·9	36·7	46·7
ENGLAND, N.W.													
Seathwaite	38·1	38·4	39·1	44·2	50·5	56·1	57·6	56·8	53·8	46·8	42·2	37·7	46·8
Blackpool	38·0	38·9	39·8	44·3	50·3	55·6	58·6	57·9	55·1	48·2	43·6	38·3	47·4
Macclesfield	36·9	37·8	39·0	44·0	50·5	56·0	58·3	57·5	54·1	46·3	42·2	36·6	46·6
Llandudno	41·3	41·2	41·7	45·5	51·3	56·7	59·2	58·8	56·2	49·9	46·0	41·4	49·1
ENGLAND, S.W.													
Carmarthen	39·7	40·9	41·8	46·2	52·0	57·3	59·2	58·7	56·0	49·2	45·2	39·9	48·8
Weston-super-Mare	40·5	41·1	42·3	46·7	52·9	58·2	61·1	60·7	57·5	50·6	46·3	40·6	49·9
Ilfracombe	43·3	43·1	43·8	47·3	52·9	57·8	60·3	60·8	58·3	52·5	48·8	43·9	51·1
Bude	41·4	41·6	42·4	46·4	52·0	57·0	59·4	59·4	56·8	50·7	47·2	41·8	49·7
Cullompton	39·5	40·2	41·6	46·0	52·2	57·6	60·0	59·1	55·8	48·7	44·8	39·1	48·7
Brampford Speke	39·4	40·3	41·9	46·6	53·2	58·5	60·7	59·4	55·4	48·5	44·7	39·1	49·0
Sidmouth	40·8	41·0	41·9	45·8	51·5	56·7	59·4	59·3	56·5	50·1	46·3	41·3	49·2
Teignmouth	41·9	41·8	43·3	47·6	53·3	58·7	61·1	60·9	57·9	50·9	47·0	41·9	50·5
Babbacombe	41·6	41·6	42·5	46·3	52·1	57·7	60·4	60·1	56·9	50·5	46·6	41·8	49·9
Ashburton	40·9	41·1	42·4	46·3	52·4	57·9	60·4	60·0	56·9	50·5	46·5	41·2	49·7
Falmouth	43·6	43·0	43·7	46·9	52·1	57·5	59·9	59·9	57·2	51·7	48·2	43·8	50·6
IRELAND.													
Londonderry	40·4	41·1	42·2	46·1	51·7	56·7	58·2	57·4	54·5	48·3	44·0	39·8	48·4
Dublin	41·7	42·0	42·7	46·3	52·2	57·6	59·9	58·8	55·5	49·2	45·7	40·9	49·4
Killarney	42·4	42·3	42·8	45·8	50·9	56·3	58·1	57·9	54·8	49·0	45·9	41·3	49·0
CHANNEL ISLANDS.													
Guernsey	43·4	43·2	44·6	47·9	53·4	57·6	60·8	61·4	59·4	53·0	49·3	44·2	51·5

TABLE VI.—MEAN RELATIVE HUMIDITY AT 9 A.M., 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
ENGLAND, NE.	%	%	%	%	%	%	%	%	%	%	%	%	%
Scarborough	91	87	86	82	77	77	76	76	84	86	88	89	83
ENGLAND, E.													
Hillington	92	90	85	81	76	75	75	78	85	89	91	92	84
Somerleyton......	89	88	84	79	75	76	74	76	83	85	88	89	82
Lowestoft	91	89	86	81	79	78	75	75	82	84	90	90	83
MIDLAND COUNTIES.													
Wakefield	91	90	87	82	77	78	78	79	84	86	89	90	84
Hodsock	90	88	82	77	72	73	72	75	83	84	89	90	81
Buxton	92	92	87	84	78	75	78	80	84	88	91	91	85
Belper	91	90	86	81	79	79	80	83	88	89	91	91	86
Cheadle	92	91	85	81	77	80	82	82	87	89	93	92	86
Churchstoke	89	89	83	78	75	77	77	80	83	86	88	89	83
Burghill..........	92	89	83	78	75	73	74	75	84	88	91	92	83
Ross	90	87	81	77	74	74	74	76	83	85	89	89	82
Cheltenham	90	88	83	78	76	77	77	78	85	88	89	90	83
Kenilworth......	90	88	84	79	74	76	75	78	85	88	91	89	83
Aspley Guise.....	94	91	84	78	73	73	73	74	83	86	92	93	83
ENGLAND, S.													
Regent's Park	89	87	83	76	71	73	73	76	82	86	88	87	81
Norwood	90	87	81	75	69	70	70	73	80	85	90	89	80
Croydon..........	90	88	82	75	70	71	71	73	81	85	89	89	80
Beddington	91	87	82	76	71	72	70	75	82	86	89	90	81
Marlborough......	93	91	86	79	75	77	75	76	84	88	92	92	84
Strathfield Turgiss	91	90	84	77	74	76	74	76	83	88	90	92	83
Swarraton	..	..	..	..	..	..	..	..	..	..	..	..	..
Harestock	90	88	81	76	72	72	73	73	81	85	88	89	81
Southampton	92	88	82	75	72	72	73	74	82	85	90	90	81
Margate..........	90	87	84	79	77	77	74	77	80	84	88	88	82
Ramsgate	90	87	84	79	76	75	74	77	80	86	88	90	82
Brighton	87	85	82	74	71	74	77	70	80	80	86	85	80
Worthing	90	89	84	80	76	76	78	77	82	85	90	90	83
Portsmouth	91	89	84	78	75	75	75	77	82	86	90	90	83
Ventnor	88	86	81	79	77	78	79	76	80	80	85	86	81
Southbourne......	89	88	82	76	75	75	77	74	82	85	89	89	82
Weymouth	87	85	82	78	77	76	77	75	79	80	84	85	80
SCOTLAND, W.													
Scaleby	89	89	87	80	79	79	80	83	85	89	91	92	85
ENGLAND, N.W.													
Seathwaite	85	87	86	77	73	75	77	79	83	83	85	86	81
Blackpool	90	91	87	80	77	75	78	78	83	84	89	90	84
Macclesfield	93	90	88	83	76	76	80	83	87	90	90	90	86
Llandudno	85	82	79	76	73	75	76	76	79	80	82	83	79
ENGLAND, S.W.													
Carmarthen	90	86	80	72	71	71	75	76	80	84	87	91	80
Weston-super-Mare	90	88	84	80	79	79	78	80	84	85	88	89	84
Ilfracombe	87	86	84	83	86	84	83	84	85	86	87	86	85
Bude	..	..	..	..	..	..	..	..	..	..	..	..	..
Cullompton	90	87	81	76	73	72	74	76	83	86	89	89	81
Brampford Speke..	92	90	84	79	77	76	78	80	87	89	92	92	85
Sidmouth	91	89	83	81	79	80	82	80	86	88	89	90	85
Teignmouth	89	87	82	79	74	75	76	77	82	85	88	90	82
Babbacombe	89	86	80	78	76	75	76	75	82	82	87	88	81
Ashburton	93	89	82	81	78	78	80	80	85	87	91	91	85
Falmouth	88	86	80	78	77	77	79	79	82	82	85	87	82
IRELAND.													
Londonderry	88	88	84	77	73	73	77	81	84	86	89	89	82
Dublin	86	85	81	76	72	73	74	80	84	85	86	86	81
Killarney	89	88	86	80	79	80	83	83	85	87	88	90	85
CHANNEL ISLANDS.													
Guernsey	89	88	84	82	83	83	83	82	84	84	86	87	85

TABLE VII.—Mean Amount of Cloud (0-10) at 9 a.m., 1881-1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
England, N.E.													
Scarborough	7·0	7·1	6·6	6·7	5·9	6·2	6·3	6·2	6·5	6·5	6·6	6·5	6·5
England, E.													
Hillington	7·9	7·8	7·5	7·4	7·2	7·1	7·1	6·8	6·9	7·0	7·6	7·9	7·4
Somerleyton	6·9	6·9	6·8	6·5	6·3	6·5	6·5	6·4	6·2	6·3	7·1	7·3	6·6
Lowestoft	6·9	7·2	6·8	6·8	6·1	6·4	6·6	6·6	6·6	6·5	7·3	7·3	6·8
Midland Counties.													
Wakefield	7·6	7·8	7·2	7·7	6·6	7·2	6·9	6·9	7·3	7·5	7·5	7·3	7·3
Hodsock	7·2	7·4	6·6	7·3	6·6	6·9	7·0	6·9	6·9	6·7	7·0	6·9	7·0
Buxton	7·9	7·8	7·1	7·3	6·8	6·7	7·1	7·2	7·2	7·4	7·9	7·7	7·3
Belper	..	..	..	..	..	..	..	..	..	..	..	..	..
Cheadle	7·5	7·4	6·7	7·0	6·5	6·5	6·9	7·1	6·6	6·5	7·1	7·2	6·9
Churchstoke	7·7	7·9	7·7	7·6	7·1	7·1	7·5	7·2	7·5	7·8	7·8	7·5	7·5
Burghill	7·6	7·4	6·9	7·2	6·7	6·7	6·9	6·5	6·8	7·1	7·2	7·2	7·0
Ross	7·0	6·8	6·1	6·8	6·2	6·0	6·3	5·9	6·3	6·4	6·7	6·8	6·4
Cheltenham	7·5	7·5	6·9	7·0	6·5	6·6	6·8	6·6	6·8	7·1	7·3	7·5	7·0
Kenilworth	8·0	7·8	7·0	7·5	7·0	6·8	7·2	7·0	7·2	7·0	7·3	7·8	7·3
Aspley Guise	7·0	7·5	6·7	7·1	6·9	6·7	6·7	6·6	6·7	6·5	7·0	7·2	6·9
England, S.													
Regent's Park	..	..	..	..	..	..	..	..	..	..	..	..	..
Norwood	7·8	7·6	6·7	6·7	6·5	6·7	6·4	6·5	6·7	6·3	7·4	7·6	6·9
Croydon	7·9	8·1	7·3	7·3	6·9	7·1	7·1	6·9	7·4	6·8	7·9	7·8	7·4
Beddington	7·5	7·7	6·6	7·0	6·5	6·5	6·3	6·4	6·9	6·7	7·4	7·3	6·9
Marlborough	7·9	7·8	6·9	7·4	6·9	7·1	6·9	6·4	7·0	6·5	7·5	7·8	7·2
Strathfield Turgiss	7·7	7·7	6·9	7·0	6·6	7·1	6·8	6·3	6·9	6·9	7·1	7·5	7·0
Swarraton	7·6	7·7	6·8	7·1	6·8	7·0	6·8	6·2	6·7	6·8	7·3	7·6	7.0
Harestock	7·7	7·8	6·8	7·3	6·8	6·9	7·0	6·6	6·9	6·8	7·4	7·6	7·1
Southampton	7·3	7·5	6·5	6·8	6·4	6·7	6·9	6·3	6·7	6·3	7·3	7·2	6·8
Margate	7·6	7·5	6·7	6·5	6·2	6·7	6·8	6·3	6·4	6·9	7·5	7·6	6·9
Ramsgate	7·5	7·4	6·7	6·3	6·0	6·4	6·4	6·0	6·4	6·6	7·3	7·6	6·7
Brighton	..	..	..	..	..	..	..	..	..	..	..	..	..
Worthing	6·6	6·4	5·8	5·9	5·5	5·7	6·1	5·2	5·4	5·5	6·6	6·4	5·9
Portsmouth	7·1	6·7	5·5	5·6	5·3	5·4	5·7	5·0	5·5	5·7	6·8	7·1	6·0
Ventnor	6·8	6·6	5·9	5·8	5·5	5·7	6·1	5·4	5·8	6·0	6·7	6·7	6·1
Southbourne	7·0	6·8	5·9	6·0	5·5	5·7	6·0	5·5	5·8	5·8	6·8	6·9	6·1
Weymouth	6·8	6·1	5·2	5·3	4·7	4·4	4·7	4·3	4·7	5·3	6·7	6·3	5·4
Scotland, W.													
Scaleby	7·8	7·5	7·1	6·9	6·5	6·5	7·5	7·3	6·9	7·0	7·4	7·5	7·2
England, N.W.													
Seathwaite	8·3	7·8	7·5	6·9	7·0	6·9	8·0	7·9	7·6	8·0	8·3	7·8	7·7
Blackpool	7·5	6·7	6·3	6·0	5·7	5·7	6·1	6·4	6·2	6·9	7·2	7·5	6·5
Macclesfield	6·5	6·5	6·7	6·8	6·3	6·2	6·6	6·8	5·9	6·6	7·0	7·1	6·6
Llandudno	7·2	7·3	7·0	6·5	6·1	6·1	7·2	7·3	6·9	7·1	7·5	7·2	7·0
England, S.W.													
Carmarthen	7·5	7·2	6·7	6·4	6·7	6·4	7·4	6·2	6·4	6·9	7·3	7·2	6·9
Weston-super-Mare	8·0	7·6	6·9	6·7	6·5	6·4	6·7	6·3	6·9	6·9	7·8	7·7	7·0
Ilfracombe	7·8	7·0	6·4	6·2	6·0	5·9	6·5	6·1	6·5	7·1	8·0	7·5	6·8
Bude	7·6	6·7	6·1	5·9	6·0	6·0	6·6	6·1	6·1	6·7	7·5	7·4	6·6
Cullompton	8·0	7·2	6·4	6·9	6·4	6·6	6·7	6·2	6·7	6·9	7·3	7·6	6·9
Brampford Speke	8·0	7·5	6·9	7·2	6·8	6·5	7·0	6·7	6·9	7·0	7·6	7·5	7·1
Sidmouth	8·1	7·9	7·1	7·2	6·7	6·6	7·3	6·8	6·6	7·1	7·8	7·7	7·2
Teignmouth	7·7	7·5	6·5	6·9	6·4	6·3	6·6	6·4	6·3	6·7	7·1	7·2	6·8
Babbacombe	7·9	7·8	6·7	7·0	6·7	6·4	6·6	6·3	6·5	6·9	7·3	7·4	7·0
Ashburton	7·2	7·1	6·2	6·4	6·1	5·9	6·0	5·7	6·2	6·3	6·8	6·9	6·4
Falmouth	7·9	7·2	6·8	6·8	6·3	6·4	6·9	6·6	6·7	6·9	7·2	7·4	6·9
Ireland.													
Londonderry	7·7	7·9	7·7	7·2	7·4	7·8	8·2	8·4	7·8	7·8	7·6	8·1	7·8
Dublin	6·6	7·2	6·5	6·3	6·1	6·4	7·0	6·5	6·2	6·2	6·2	6·4	6·5
Killarney	7·5	7·7	7·0	7·1	7·3	6·8	7·8	7·5	7·4	7·4	7·4	7·2	7·3
Channel Islands.													
Guernsey	7·3	7·3	6·6	6·3	5·7	6·0	6·2	5·5	6·3	6·6	7·5	7·5	6·6

TABLE VIII.—Mean Rainfall, 1881-1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
England, N.E.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Scarborough ..	2·02	1·77	2·09	2·03	1·85	1·66	2·81	2·86	2·32	3·33	2·59	2·17	27·50
England, E.													
Hillington	1·98	1·66	1·89	1·54	1·75	2·18	3·03	2·79	2·73	3·03	2·69	2·13	27·40
Somerleyton ..	1·60	1·58	1·60	1·59	1·85	1·42	2·70	1·96	2·74	3·53	2·76	2·12	25·45
Lowestoft	1·44	1·37	1.49	1·51	1·64	1·51	2·74	1·83	2·75	3·25	2·61	2·02	24·16
Mid. Counties													
Wakefield	2·18	1·74	2·16	2·06	2·15	1·91	2·82	2·11	2·04	2·90	2·41	2·04	26·52
Hodsock......	2·00	1·56	1·91	1·70	2·38	1·76	2·36	2·28	1·78	2·66	2·05	1·85	24·29
Buxton	4·66	3·51	3·96	2·48	3·24	3·22	4·43	4·26	3·84	5·23	5·70	4·78	49·31
Belper........	2·70	2·27	2·44	2·04	2·42	2·24	2·73	2·76	2·53	3·58	3·18	2·67	31·56
Cheadle	2·46	2·03	2·37	1·95	2·30	2·73	2·89	3·04	2·77	3·27	3·39	2·63	31·83
Churchstoke..	2·88	2·49	2·06	2·18	2·61	2·16	2·57	2·67	2·32	3·16	3·68	2·69	31·47
Burghill......	2·06	1·96	1·67	1·86	2·16	2·21	2·47	2·04	1·82	2·34	2·87	1·92	25·38
Ross	2·81	2·24	2·06	2·15	2·36	2·37	2·99	2·28	2·30	2·82	3·27	2·23	29·88
Cheltenham ..	2·13	2·11	1·95	1·95	2·12	2·32	2·82	2·04	2·27	2·58	3·02	2·19	27·50
Kenilworth . ..	2·22	1·84	1·91	1·74	2·16	2·01	2·71	2·47	2·33	2·67	2·89	2·01	26·96
Aspley Guise..	1·69	1·47	1·56	1·69	2·18	1·75	2·27	1·84	2·11	2·40	2·60	1·88	23·44
England, S.													
Regent's Park .	1·91	1·78	1·73	1·78	2·05	2·05	2·68	2·03	2·25	2·60	2·50	1·81	25·17
Norwood......	1·75	1·68	1·53	1·69	1·86	1·89	2·83	1·88	2·06	2·42	2·51	1·73	23·83
Croydon......	1·94	1·86	1·73	1·80	1·86	1·66	2·68	1·87	2·12	2·54	2·86	1·88	24·80
Beddington ...	1·81	1·68	1·61	1·65	1·93	1·60	2 80	1·72	2·04	2·43	2·60	1·74	23·61
Marlborough..	2·75	2·55	2·25	2·00	2·10	2·38	2·97	2·26	2·42	2·86	3·51	2·65	30·70
Strathfield T. .	2·14	1·86	1·55	1·65	1·97	1·86	2·35	1·99	2·10	2·53	2·75	1·86	24·61
Swarraton....	2·61	2·28	2·12	1·89	2·23	1·95	2·75	2·46	2·42	2·82	3·24	2·47	29·24
Harestock	2·92	2·15	2·19	1·98	2·13	2·11	2·46	2·32	2·40	2·96	3·40	2·72	29·74
Southampton..	2·67	2·09	2·03	1·96	2·22	1·82	2·64	2·19	2·44	3·04	3·45	2·67	29·22
Margate......	1·72	1·41	1·44	1·51	1·56	1·38	2·12	1·76	2·48	3·11	2·65	2·17	23·31
Ramsgate.....	1·62	1·43	1·66	1·52	1·60	1·44	2·49	1·87	2·58	3·11	2·71	2·20	24·23
Brighton......	2·67	2·04	1·92	1·70	1·76	1·70	2·60	2·12	2·70	3·74	3·37	2·43	28·75
Worthing	2·30	1·92	1·76	1·55	1·74	1·69	2·32	1·99	2·50	3·29	3·22	2·26	26·54
Portsmouth ...	2·33	1·92	1·69	1·63	1·90	1·74	2·34	1·94	2·33	2·90	3·19	2·12	26·03
Ventnor......	2·60	2·00	1·78	1·71	1·83	1·66	2·41	1·72	2·58	3·56	3·48	2·80	28·13
Southbourne..	2·28	1 91	1·75	1·71	2·02	1·91	2·04	1·77	2·37	2·96	3·20	2·41	26·33
Weymouth	2·33	1·96	1·79	1·81	1·75	2·24	1·92	1·90	2·19	3·01	3·52	2·59	27·01
Scotland, W.													
Scaleby	2·59	1·74	2·37	1·73	2·05	2·29	3·98	3·44	3·08	2·89	3·47	2·58	32·21
England, NW.													
Seathwaite....	13·58	11·14	10·97	6·43	8·57	6·81	11·44	8·81	12·10	11·24	14·75	13·20	129·04
Blackpool	2·96	2·10	2·65	1·80	2·47	1·96	3·62	3·22	3·35	3·37	3·98	2·75	34·23
Macclesfield ..	2·81	1·94	2·59	1·79	2·39	2·92	3·67	3·49	2·99	3·41	3·50	3·10	34·60
Llandudno....	2·58	1·86	2·04	1·79	2·00	1·76	2·50	2·58	2·17	3·06	3·24	2·54	28·12
England, SW.													
Carmarthen ..	4·65	3·64	3·68	2·52	2·91	2·86	4·61	3·78	4·20	5·21	5·84	4·75	48·65
Weston-s-Mare	2·23	1·57	1·85	1·95	2·04	2·15	2·90	2·91	2·59	3·02	3·23	2·43	28·87
Ilfracombe . ..	2·62	1·90	2·16	1·64	2·07	1·90	2·55	2·70	2·71	3·22	3·85	3·31	30·63
Bude	3·13	2·24	2·15	1·85	1·91	1·90	2·54	2·32	2·97	3·69	4·06	4·09	32·85
Cullompton...	3·07	2·77	2·47	2·52	2·24	2·13	3·19	2·78	2·73	3·71	3·94	3·41	34·96
Brampford Sp.	2·78	2·94	2·37	2·35	2·04	1·96	2·93	2·43	2·61	3·88	3·78	3·18	33·25
Sidmouth	2·86	2·60	2·27	2·47	1·96	2.24	2·93	2·49	2·68	3·38	3 59	2·97	32·44
Teignmouth ..	2·92	2·73	2·68	2·28	2·02	1·78	2·78	1·93	2·24	3·51	3·56	3·14	31·57
Babbacombe..	3·26	2·75	2·79	2·37	2·22	1·87	2·92	2·26	2·36	3·65	4·03	3·41	33·89
Ashburton....	5·15	4·68	4·26	3·20	2·60	2·39	3·79	3·25	3·59	5·45	6·54	5·67	50·57
Falmouth.....	4·09	3·61	3·21	2·55	2·41	2·25	3·48	2·92	3·77	4·72	5·60	4·95	43·56
Ireland.													
Londonderry..	3·87	3·01	2·84	1·93	2·55	2·44	3·56	4·01	3·86	3·94	4·62	3·92	40·55
Dublin........	2·10	2·17	2·06	2·10	2·08	1·64	2·28	2·66	20·2	2·71	2·93	2·02	26·77
Killarney	7·38	5·99	4·58	3·22	3·49	2 80	3·42	4·17	4·08	5·34	6·22	6·41	57·10
Channel Is.													
Guernsey......	2·99	2·50	2·04	1·96	1·98	1·88	2·12	2·17	2·67	4·06	4·82	3·34	32·53

TABLE IX.—No. of Rainy Days (0·01 in. and upwards), 1881–1890.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
ENGLAND, N.E.													
Scarborough......	16	16	17	16	15	13	16	15	16	19	19	19	197
ENGLAND, E.													
Hillington........	17	15	14	15	14	12	16	14	13	18	18	17	183
Somerleyton......	15	15	14	15	11	10	15	12	15	18	19	16	175
Lowestoft	15	14	14	14	11	11	15	13	15	17	18	16	173
MIDLAND COUNTIES.													
Wakefield	17	15	14	15	12	11	16	14	15	17	18	16	180
Hodsock	17	15	13	15	14	12	16	14	16	17	17	16	182
Buxton	17	17	17	14	14	13	16	16	16	19	20	17	196
Belper............	16	14	13	14	14	11	16	14	15	17	19	15	178
Cheadle..........	18	15	17	14	15	12	18	15	16	18	20	17	195
Churchstoke	16	14	14	13	15	13	17	14	14	18	19	14	181
Burghill..........	17	13	13	13	13	12	16	13	13	16	18	17	174
Ross	17	15	14	15	16	14	18	15	17	18	20	15	194
Cheltenham	17	15	14	15	14	13	18	14	14	19	20	17	190
Kenilworth........	17	13	13	14	13	13	16	14	13	17	18	16	177
Aspley Guise......	16	13	11	14	13	11	15	13	13	16	16	15	166
ENGLAND, S.													
Regent's Park	15	13	12	14	13	12	15	13	12	15	16	15	165
Norwood	15	14	13	14	13	11	16	13	14	16	18	16	173
Croydon	15	13	13	14	13	11	16	13	14	16	18	16	172
Beddington........	15	12	13	13	13	10	14	13	13	16	17	15	164
Marlborough.......	17	14	14	15	14	14	17	14	14	17	19	18	187
Strathfield Turgiss	16	12	13	13	13	11	15	13	13	16	17	14	166
Swarraton	15	11	11	12	12	11	14	13	12	15	15	15	156
Harestock	16	13	13	13	14	11	15	14	12	16	17	16	170
Southampton......	18	14	15	14	13	12	17	15	15	17	19	18	187
Margate..........	16	14	13	14	12	9	14	14	14	16	17	16	169
Ramsgate	15	13	13	14	11	9	13	12	14	16	17	16	163
Brighton	16	13	13	12	11	10	12	12	12	16	17	15	159
Worthing	16	13	11	12	11	11	12	12	13	14	17	15	157
Portsmouth	17	13	13	14	12	11	15	14	14	15	18	17	173
Ventnor..........	16	13	13	12	12	10	14	13	13	15	18	15	164
Southbourne	16	12	12	11	12	11	14	12	12	15	17	16	160
Weymouth........	16	11	12	12	11	11	13	12	12	14	18	15	157
SCOTLAND, W.													
Scaleby	19	15	17	14	15	13	19	17	18	18	20	16	201
ENGLAND, N.W.													
Seathwaite	20	17	19	14	16	15	21	19	18	19	20	21	219
Blackpool	19	16	15	15	14	12	17	15	17	17	19	18	194
Macclesfield	17	16	15	13	15	12	19	16	16	18	18	17	192
Llandudno	17	14	14	13	11	12	14	14	16	17	18	16	176
ENGLAND, S.W.													
Carmarthen	20	16	16	14	15	14	18	17	17	20	23	20	210
Weston-super Mare	17	13	13	13	15	12	17	15	14	16	18	15	178
Ilfracombe........	17	13	16	14	15	12	18	15	15	18	19	17	189
Bude	16	11	10	10	11	9	12	12	11	15	18	15	150
Cullompton	19	15	14	15	13	12	17	16	16	20	21	19	197
Brampford Speke..	19	16	15	14	14	12	17	15	15	19	21	20	197
Sidmouth	18	16	16	15	14	14	18	17	17	19	21	19	204
Teignmouth	16	14	14	13	12	11	14	11	12	16	19	17	160
Babbacombe......	17	14	16	14	13	13	16	14	15	18	21	18	180
Ashburton........	18	14	15	14	13	12	17	14	16	17	21	18	189
Falmouth	21	15	17	14	14	12	17	15	16	20	22	21	204
IRELAND.													
Londonderry	22	20	21	16	17	16	23	21	19	21	22	22	240
Dublin	18	16	16	14	16	15	18	16	15	17	19	16	196
Killarney	22	18	18	16	17	14	20	19	18	20	23	20	225
CHANNEL ISLANDS.													
Guernsey	17	16	14	13	11	10	13	12	14	19	22	18	176

The rainfall is now rather irregular, as a rule it diminishes in August and September, but there are notable exceptions, particularly in our south-west and south districts, and also in Ireland and Guernsey ; and it then rises again in October. Before dealing with this month, I should like to remark that in *October* our sea coast stations have a larger amount of rain than our inland stations. No station has under 2 inches ; between 2 and 3 inches are all the stations between longitude 0° and 3° W. (except Brighton, Worthing, Southampton, Ventnor, Weymouth, Weston-super-Mare, Belper, Cheadle, Macclesfield, Buxton, and Guernsey), and also Dublin ; between 3 and 4 inches are Scarborough, Hillington, Somerleyton, Lowestoft, Margate, Ramsgate, Brighton, Worthing, Southampton, Ventnor, Weymouth, Sidmouth, Brampford Speke, Cullompton, Teignmouth, Babbacombe, Bude, Ilfracombe, Weston-super-Mare, Churchstoke, Belper, Cheadle, Macclesfield, Llandudno, Blackpool, and Londonderry ; between 4 and 5 inches are Falmouth, and Guernsey ; between 5 and 6 inches are Ashburton, Carmarthen, Buxton, and Killarney ; and over 6 inches is Seathwaite (11·24 ins.).

November seems to be a wetter month than October except in our North-eastern, Eastern, and South-eastern Counties, but I do not propose to go into this at length, as the distribution is very similar to that of October, December has a rainfall smaller than November and rather greater than January, with a distribution similar to this latter month.

The mean yearly rainfall is under 25 inches at Hodsock, Lowestoft, Margate, Ramsgate, Aspley Guise, Norwood, Croydon, Strathfield Turgiss, and Beddington ; it is between 25 and 30 inches at Scarborough, Wakefield, Llandudno, Dublin, Burghill, Ross, Cheltenham, Kenilworth, Hillington, Somerleyton, Regent's Park, Brighton, Worthing, Ventnor, Portsmouth, Southampton, Harestock, Swarraton, Southbourne, Weymouth, and Weston-super-Mare ; between 30 and 35 inches at Scaleby, Blackpool, Macclesfield, Cheadle, Belper, Churchstoke, Marlborough, Cullompton, Brampford Speke, Sidmouth, Teignmouth, Babbacombe, Bude, Ilfracombe, and Guernsey ; between 35 and 40 inches at no station ; between 40 and 45 inches at Falmouth, and Londonderry : between 45 and 50 inches at Carmarthen, and Buxton ; and over 50 inches at Ashburton (50·57 ins.), Killarney (57·10 ins.), and Seathwaite (129·04 ins.) Practically less rain falls in the east than in the west, and the rate of fall increases as we travel west.

As to the number of rainy days, I do not propose to deal with this much at length, for the number of rainy days is very uniform, and at no station is the difference between the months of greatest and least number more than nine days. On looking at Table IX. it will at once be seen that the smallest number of rainy days occurs in June and the largest in November in all districts. With reference to the mean yearly number of rainy days I shall treat more at length, as it shows some very interesting features. Bude, Weymouth, Swarraton, Worthing, and Brighton, have between 150 and 159 rainy days ; Aspley Guise, Regent's Park, Beddington, Strathfield Turgiss, Margate, Ramsgate, Ventnor, Southbourne, and Teignmouth, have between 160 and 169 days ; Llandudno, Belper, Burghill, Kenilworth, Somerleyton, Lowestoft, Norwood, Croydon, Harestock, Portsmouth, Weston-super-Mare, and Guernsey have between 170 and 179 days; Wakefield, Hodsock, Hillington, Churchstoke, Marlborough, Southampton, Babbacombe, Ashburton, and Ilfracombe, have between 180 and 189 days; Scarborough, Blackpool, Dublin, Macclesfield, Buxton, Cheadle, Ross, Cheltenham, Cullompton, and Brampford Speke, have between 190 and 199 days; Scaleby, Sidmouth, and Falmouth, have between 200 and 209 days; Carmarthen and Seathwaite have between 210 and 219 days; Killarney has 225 days and Londonderry 240 days.

The general conclusions to be drawn from this paper may be shortly summarised as follows:—

(1.) With respect to mean temperature the sea coast stations are warm in winter and cool in summer, whilst the inland stations are cold in winter and hot in summer.

(2.) The mean maximum temperature occurs at all stations in July or August, while the mean minimum takes place mostly in December or January, except at Llandudno and the south-western sea coast stations, where it is later, taking place in February or March.

(3.) Relative Humidity is lowest at the sea coast stations and highest at the inland ones.

(4.) The south-western district seems the most cloudy in winter, spring, and autumn, and the southern district the least cloudy in the summer months, and the sea coast stations are, as a rule, less cloudy than the inland ones.

(5.) Rainfall is smallest in April and, as a rule, greatest in November, and it increases as we travel from east to west.

DISCUSSION.

Mr. SYMONS said that in the process of preparing the two diagrams of mean temperature and of lowest mean minimum temperature, which had been placed before the meeting, he had been obliged to carefully go through the figures contained in this paper, and had not succeeded in discovering any erroneous values, a result which spoke well both for the compiler and the printer of the paper. His object in constructing the maps shown was to ascertain where the warmest winter temperature prevailed, and also where the warmest yearly temperature was experienced. He did not quite understand how it was that Dublin was so warm in winter; possibly it was due to the influence of the sea, or to the position of the instruments in the heart of the city. The distribution of the lowest minimum temperatures was just what one would have expected, stations adjacent to the sea being warmer than those inland, and the west coast being warmer than the east. In the case of the mean temperature the distribution was a little different. One very noticeable anomaly was that of Ilfracombe. He did not understand why this place should be so warm, and could not help thinking that the method of exposure (of which he did not at all approve) was largely responsible for these apparently favourable climatic conditions. The form of screen used—really a large summer house,—the position of the rain gauge on the roof of this erection, and the general surroundings of the instruments, were, he thought, calculated to give results which would make Ilfracombe appear in a much more favourable light as regarded temperature and rainfall than was actually the case. It would be for the Council to consider whether a station so equipped ought to have been accepted or to be retained on the list. Attention had been drawn to the low percentage of relative humidity at Seathwaite, which, as was well known, was by far the wettest of all the stations compared in Mr. Bayard's paper. He had no reason to doubt the correctness of this result, and he believed it was usually the case that at places with a large rainfall, the air was as dry as, or drier than, at places where the rainfall was comparatively small. He thought this was due to the fact that it was the stations at considerable elevation which registered the largest rainfall, and the high ground being frequently of a rocky nature, very little rain penetrated the soil, so that the amount of moisture evaporated from the ground was exceedingly small, and quite insufficient to cause any appreciable increase in the relative humidity of the air. The neighbourhood of Buxton had been pointed out as one of the districts where the percentage of humidity was highest, but he believed it would be found, if observations were available, that at the neighbouring town of Matlock, where the rainfall was considerably less than at Buxton, the air was much damper. He was surprised to see the observations of amount of cloud (Table VII.) agree so very closely, and thought the very uniform results spoke well for the efficiency of the observers. He did not think that the table of number of "rainy days" afforded much material for discussion, as the records of days of rainfall depended so much on the disposition of individual observers, some of whom ignored very small amounts, while others duly measured them and entered them in their registers. He had endeavoured to ascertain the mildest places during the winter months, chiefly as indicated by the mean minimum temperatures, and had found that the stations ranged themselves in the following order:—Guernsey, Ilfracombe, Falmouth, Ventnor, Teignmouth, Weymouth, Llandudno, and Babbacombe. The smallness of the amount of daily range of temperature was an important factor in the determination of the climatic conditions of any place, and giving weight to this consideration, as well as to the average degree of cold experienced, the following order was obtained:—Ilfracombe, Guernsey, Falmouth, Ventnor, Llandudno, Weymouth, Teignmouth, and Babbacombe. It would be noticed that the extreme difference between the mean temperature of the stations on the south coast did not amount to more than 1°·0 or 1°·5; but he ventured to think that the same amount of difference could be obtained between records from two streets in any of these towns. The fact was that it was desirable to have, if possible, several stations in each seaside resort, at gradually increasing elevations and distances from the sea. It was important, too, that the exposure in each of the seaside towns should be, as nearly as possible, at a similar distance from the sea and at a similar elevation, so that the observations could be more strictly comparable. He had not much doubt that if the instruments at Brighton were placed on what was known as the Madeira Drive, instead of, as at present, located in the Old Steyne Gardens, the results would probably equal the Ventnor records; and if the Ventnor instruments were at a lower elevation and nearer the beach than they are now, the effect would probably be that still more favourable results would be obtained than those given in this paper.

The PRESIDENT (Dr. WILLIAMS) said that in speaking of Buxton and Cheadle as the coldest stations, it must be remembered that both these places were at a considerable height above the level of the sea, Buxton being at an elevation of 987 feet, and Cheadle 646 feet. Respecting the warmth of the sea coast stations in winter compared with those inland, it was interesting to observe the effect of the warm water in the south-west upon the temperature of the air on the neighbouring coast, the higher temperature of the air in the west as compared with that in the east being due to the warming influence of the waters of the Atlantic. The following figures of average sea and air temperatures in the month of February at five stations clearly showed this effect:—

	Sea Temperature.	Air Temperature.
	°	°
Scilly Islands	49	47
Falmouth	48	46
Torquay	46	45
Dover	43½	42
Yarmouth	39	40

It would be noticed that in the case of estuaries like the Bristol Channel, Southampton Water, and the Wash, the influence of the sea upon air temperature was considerably diminished, and this was probably to be accounted for by the fact that these inlets were comparatively shallow, so that a good deal of wet sand bank would be exposed at low water, giving rise to a considerable amount of evaporation, which would tend to lower the air temperature. Then too the water in such estuaries would not be entirely sea water, and the fresh water mixed with it would have the effect of making the temperature lower than that of the adjacent sea. It would be noticed that, generally speaking, there was a decrease in warmth along the course of the English Channel from Land's End to Dover, or the farther places were removed from the influence of the Gulf Stream the less mild their winter climate became. He had not succeeded in discovering why Ilfracombe was so much warmer in winter than Bude, as both were under the influence of the Gulf Stream. The difference might, of course, be due to the exposure of the instruments at Ilfracombe, or might arise from the naturally sheltered position of Ilfracombe; Bude being very exposed and unprotected. Carmarthen appeared to be cold, as from its proximity to the west coast he would have expected it to have been warmer. On the whole the results of these ten years observations confirmed what Dr. Tripe, Dr. Buchan, and himself had previously shown, viz. the great influence of the Gulf Stream in equalising the climate of sea coast stations in the west, and especially in giving them a mild winter climate. Concerning Mr. Symons's remarks upon the differences of climate to be found in a single sea-side health resort, there was no doubt that to obtain the warmest situation it was necessary that the observations should be made as near to the sea as possible. Any elevation above sea level caused reduction of temperature.

Admiral Maclear said that he could confirm the statement that a large rainfall has but little, if any, effect upon the humidity of the air, for when he was stationed in the Straits of Magellan, where it rained on an average five days a week, wet clothes hung out under an awning dried very speedily. The natives of the neighbouring land of Tierra del Fuego were accustomed to go about without any clothing, and appeared to suffer no inconvenience. They could not have so exposed themseves if the air had been damp.

Mr. Gaster said that twenty-two years ago he visited Ilfracombe, and his opinion as to the exposure of the thermometers compelled him to use the observations with very great caution. With regard to Mr. Bayard's paper, he confessed that he was rather disappointed with the manner in which the material had been handled. The conclusions arrived at were not very new, where correct; it was hardly necessary, for instance, to say that the inland stations are colder in winter than those on the coast, because that was a fact which was already well known. He considered the results needed rather to be discussed in a manner which had regard to the situation of the stations in relation to the surrounding country, their distance from and height above the sea, whether they were on hills or in valleys, the direction in which the valleys ran, &c. If reference was made to any good collection of mean temperatures over the British Islands it would be noticed that, after allowing for altitude, a band of warm air stretched across Scotland from the Firth of Clyde to the Firth of Forth in winter, and a band of cool air in summer, the explanation being that in winter the warm sea air rushed through the valley, meeting little impediment, and thus retained more of its heat than the air which collided with, and was stopped by, the hills to the northward and southward of the valley referred to. The present observations, if combined with those from other authorities, would doubtless show other positions where similar phenomena would be observed; and there were many other ways in which better use might be made of such excellent materials.

Mr. Ellis said that Mr. Bayard's paper was excellent so far as it went. He thought it was important to have the original values when dealing with figures, and these Mr. Bayard had given, it being open to any person to apply any corrections for altitude or otherwise, and discuss the observations in any manner he thought fit. He (Mr. Ellis) had compared some averages of the four stations, Norwood, Regent's Park, Croydon and Beddington (the altitudes of which did not differ very much from that of Greenwich) with those for the Royal Observatory for the same period of years. The averages of the four places for the ten years were: mean maximum, 56°·0; mean minimum, 41°·8; mean temperature, 48°·9; the mean temperature at Greenwich, deduced from the hourly readings from the photographs reduced to the thermometer of the revolving stand, being also 48°·9. The mean result of amount of cloud also agreed very closely, the mean of the four stations being 6·9 and the mean at Greenwich 7·0. The average number of rainy days at the four stations was 168, and at Greenwich 162. The agreement is thus very satisfactory. He had not had opportunity to make further comparison. A mean from ten years observations, while the best that could be obtained from the Society's published results, was of course not founded on a sufficiently long period to be accepted as an absolutely reliable average. In fact he had shown in a paper read before the Society in 1891, that the monthly averages of temperature for different periods of ten years differ as much as 2° or 3°. Fifty years, although a lengthy period, was perhaps hardly sufficient to obtain a satisfactory mean, and it was doubtful if a hundred years was any too long for the purpose of obtaining a reliable average.

Mr. Strachan thought that some reference should have been made to the work which others had done in this branch of meteorology. He drew attention to the fact that two, and, in the case of second order stations, three different, mean temperatures were published in the *Meteorological Record*, viz. mean temperature at 9 a.m., the mean of maximum and minimum, and, in the second order tables, the mean of the averages at 9 a.m. and 9 p.m. These three values often differed considerably, especially in the summer months, and having regard to this difference he considered that it was desirable that a definite decision should be come to as to which of these three values was to be accepted as representing the true mean temperature. The Society might devise and adopt a definite method for deducing mean monthly temperatures.

Mr. M. Jackson said that there was a popular belief that seaside places were much colder than places situated inland; and he had known parents who had seriously considered this popular notion when selecting a school for their children. The results given in Mr. Bayard's paper entirely dissipated such an idea. It would be noticed from a glance at the tables that so far as temperature was concerned Croydon and Ramsgate agreed very well together on the mean, but the mean was not the only item which had to be considered in determining the value of any place as a health resort, the extreme temperatures being of very great importance, as invalids and weakly people were very susceptible to extremes of heat and cold. He had been much surprised, in looking through the figures, to find that Buxton was so cold and wet, and that the climate of Ilfracombe was of so favourable a character, but he thought it desirable that these results should be confirmed or modified by observations made at other stations differently situated in these two towns.

Mr. Latham said that there was no doubt that many of the stations showed a higher temperature than was due to them owing to their sheltered situation. Llandudno, for instance, was a place to which such a remark applied, its natural formation securing for it a greater degree of warmth than its geographical position would lead one to expect. The town was situated on low ground and had a southerly aspect, being sheltered on the north by the promontory of the Great Orme, which really acted as a great reflector of the sun's rays, as well as a protection against winds from a cold quarter. Ilfracombe, too, was greatly sheltered by the high grounds in the immediate neighbourhood, and probably the favourable climatic conditions which appeared to prevail at this health resort were assignable to its protected situation. With respect to the observations of amount of cloud, it was desirable to bear in mind that the expanse of sky visible varied greatly at different places, and the wonder was that there were not greater discrepancies between the observations.

Mr. Wallis said that the ten years quoted in the paper is far too short a period for obtaining true averages of rainfall, if not of temperature also, and it would be interesting if Mr. Bayard could add the twenty years mean for two or three of the stations, so as to exhibit the relation of the averages given to those of a longer period.

Mr. Marriott said that the stations organised by the Society were started on an uniform system, and everything possible was done to render the observations reliable. Each station was regularly inspected, the thermometers in use being tested and the manner of exposure and methods of observation inquired into at every visit of inspection. The alterations in the corrections for the index errors of the thermometers were ascertained and allowed for. At the first inspection the alterations were found to be in many cases considerable. As regarded the exposure and situation of the instruments, the albums of photographs of the stations afforded a ready means of judging of the method of exposure, the local peculiarities of any station, and other conditions which might exercise an effect upon the observations. Mr. Strachan had stated that some confusion seemed likely to arise concerning what should be regarded as the "mean temperature," three various means being given in the *Meteorological Record*, but he (Mr. Marriott) thought that if the headings of the columns containing the means of the temperature observations were read, no one could fail to understand what the several values represented. He had taken the mean temperature, the mean maximum temperature, and the mean minimum temperature for the year and for January and July at each station and plotted them on maps, having first reduced all the figures to their equivalent sea-level values, and had found that most of the apparent anomalies to which the previous speakers had drawn attention almost entirely disappeared. The results from Ilfracombe had been particularly questioned, and the manner of the exposure of the instruments there greatly objected to; but taking the sea-level temperatures as given in the maps which he had prepared, the Ilfracombe figures agreed very well with neighbouring stations. The mean maximum was lower in summer and higher in winter than at other stations in the district, and the mean minimum was higher, a condition of things which appeared to be plainly due to the influence of the sea, which was in close proximity to the screen. At any rate he did not see how such a result could be in any way due to the method of exposure, as, in his opinion, the large summer house sort of erection, with its pyramidal roof, which was used as a shelter for the thermometers at Ilfracombe,[1] if it had any effect at all, would be more likely to affect the maximum thermometer, and thus cause higher temperatures to be recorded. The minimum temperatures which were registered there could not be affected by the form of screen in use, but were no doubt greatly influenced by the sea. It was hardly fair to compare Bude with Ilfracombe, as, although on the same coast and not a great many miles apart, their situation as regards exposure was widely different, Ilfracombe being greatly sheltered, while Bude was very bleak and open.

The mean minimum and maximum temperatures at Weston-super-Mare, Ilfracombe and Bude were as follows:—

		Weston-s.-Mare.	Ilfracombe.	Bude.
		°	°	°
Mean Minimum	Year	44·3	46·9	43·7
	January	36·1	39·4	36·4
	July	55·1	55·7	53·5
Mean Maximum	Year	55·5	55·3	55·6
	January	44·9	47·2	46·4
	July	66·9	64·9	65·3

Proximity to streams seemed to have the effect of lowering the air temperature. This was particularly noticeable in the case of Beddington, in Surrey, the instruments there being close to the River Wandle. The influence of the sea upon air temperature in the south-west was indicated by the fact of the lowest mean minimum temperature at the sea coast stations in that district taking place in March, as the minimum temperature of the sea occurred in that month.

One speaker had suggested that a twenty years' average should be given for those stations where the records were of sufficient extent; he had made a comparison between the averages for twenty years, 1871-90, recently published by the Meteorological Office as a supplement to the *Weekly Weather Report*, and those for the ten years 1881-90, worked up by Mr. Bayard for as many of the stations as appeared in both sets of averages, and had found the average temperature for the years 1881-90 was about 0°·4 lower than the average of the twenty years 1871-90. He had also made a comparison between the mean monthly amounts of cloud and the percentages of possible duration of bright sunshine at nine stations for the period 1881-90, and had found that there was a very close agreement between the cloud and sunshine observations, as would be seen by the figures given in the Table on the next page.

If the average of the rainfall at all the stations within each degree of longitude was calculated, beginning with the eastern stations and working westwards, the gradual increase in the amount of rainfall from east to west was very clearly marked. There was not such a marked variation in the rainfall if the stations were arranged according to latitude. (See figures on the next page.)

---

[1] NOTE.—A new set of thermometers mounted in a Stevenson screen over grass, together with a Snowdon rain gauge, will shortly be added to the equipment of the Station at Ilfracombe.—*October 19th.*

CLOUD AND SUNSHINE.

Stations.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Hillington	Cloud	7·9	7·8	7·5	7·4	7·2	7·1	7·1	6·8	6·9	7·0	7·6	7·9	7·4
	Sunshine ..	17	24	29	35	43	39	39	39	33	29	21	16	30
Hodsock	Cloud	7·2	7·4	6·6	7·3	6·6	6·9	7·0	6·9	6·9	6·7	7·0	6·9	7·0
	Sunshine ..	14	21	27	30	36	31	32	33	29	26	20	14	26
Churchstoke	Cloud	7·7	7·9	7·7	7·6	7·1	7·1	7·5	7·2	7·5	7·8	7·8	7·5	7·5
	Sunshine ..	18	23	29	33	39	36	35	37	33	28	20	16	29
Blackpool	Cloud	7·5	6·7	6·3	6·0	5·7	5·7	6·1	6·4	6·2	6·9	7·2	7·5	6·5
	Sunshine ..	13	22	26	34	41	37	35	35	32	26	18	12	28
Llandudno	Cloud	7·2	7·3	7·0	6·5	6·1	6·1	7·2	7·3	6·9	7·1	7·5	7·2	7·0
	Sunshine ..	15	24	25	33	40	36	33	35	29	23	18	11	27
Cullompton	Cloud	8·0	7·2	6·4	6·9	6·4	6·6	6·7	6·2	6·7	6·9	7·3	7·6	6·9
	Sunshine ..	14	23	33	35	40	40	36	41	36	28	18	14	30
Falmouth	Cloud	7·9	7·2	6·8	6·8	6·3	6·4	6·9	6·6	6·7	6·9	7·2	7·4	6·9
	Sunshine ..	18	27	36	42	46	47	43	47	39	35	26	22	36
Dublin	Cloud	6·6	7·2	6·5	6·3	6·1	6·4	7·0	6·5	6·2	6·2	6·2	6·4	6·5
	Sunshine ..	22	25	32	39	44	37	32	36	34	31	28	21	32

RAINFALL.

Longitude.

	No. of Stations.	Ins.
East of 0°	5	24·91
0°—1° W	8	25·48
1°—2° W	14	29·61
2°—3° W	7	29·35
3°—4° W	9	35·61[1]
4°—5° W	4	38·92

[1] Including Seathwaite 44·95.

Latitude.

	No. of Stations.	Ins.
50°—51° N	15	32·34
51°—52°	15	28·32
52°—53°	8	27·01
53°—54°	7	32·66
54°—55°	3	29·85[1]

[1] Including Seathwaite 62·92.

Mr. HARRIES thought that the explanation of the occurrence of the lowest mean minimum temperature at the seaside stations in the west in the month of March was different from that suggested by Mr. Marriott. March was the month during which the East wind was at its worst, and as it is a dry land wind in the western districts it would not only tend to lower the air temperature, but also, by driving back, or at least checking the landward flow of, the warm surface water of the Atlantic, the sea temperature along the coast would be lowered much in the same way as in the more pronounced changes of sea surface temperature on the east and west coasts of Africa and other localities, according as the monsoon blows from the land or from the sea. Instead, therefore, of the western low night minima being due to the decrease of sea temperature, it is more likely that both phenomena result from the prevalence of East winds.

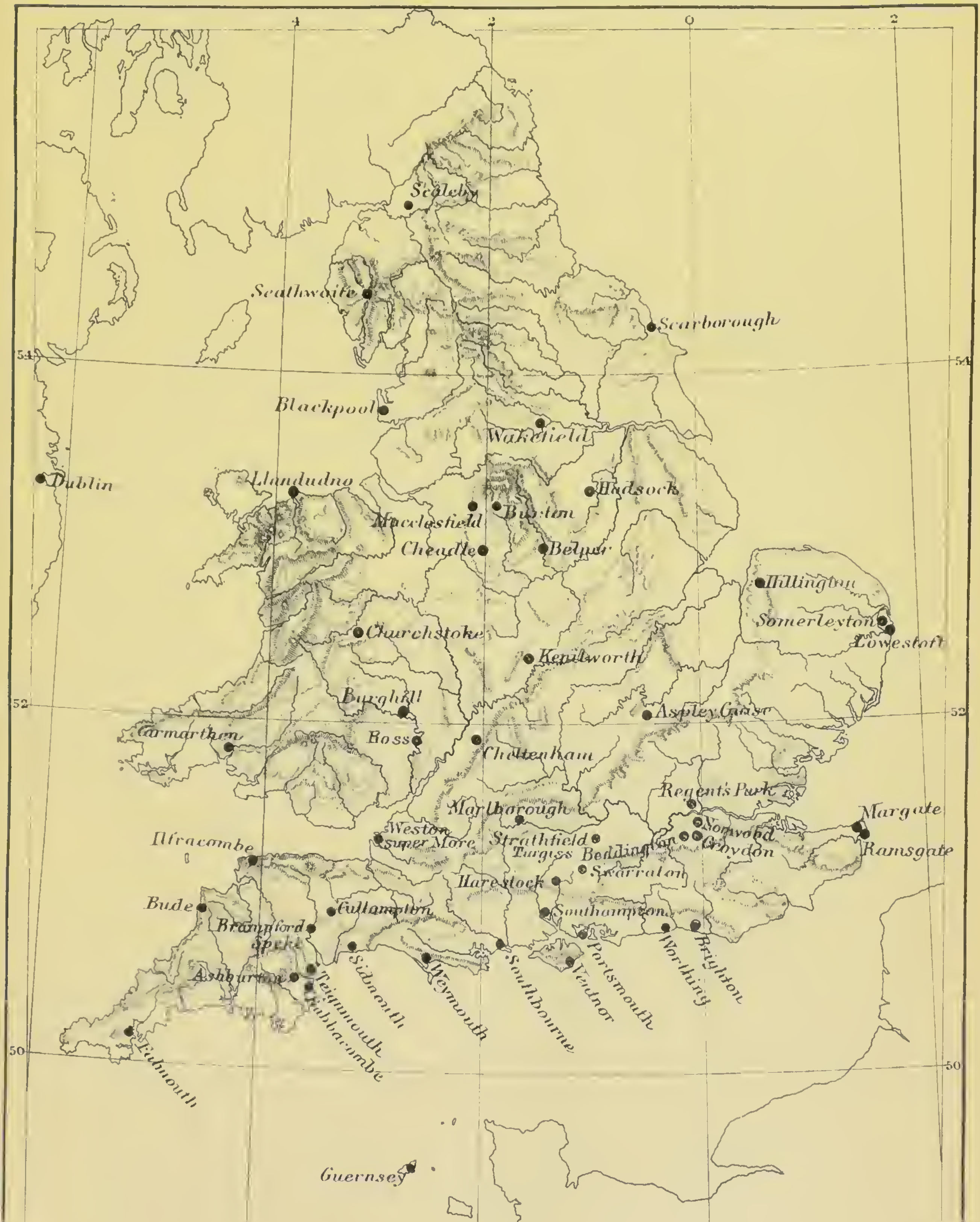
Mr. BAYARD, in reply, said that so far as the reduction of the temperature observations to sea level was concerned, he was of opinion that it was better to give the actual average at each station rather than a value which did not represent the weather experienced by those who resided there. The paper was purely and simply a record of the climatic conditions at each station. He was well aware of the work which Dr. Buchan and the late Dr. Tripe had done on this subject, and, indeed, it was Dr. Tripe who was the originator of the idea that the Society should establish a series of well-organised climatological stations; for he found when compiling his paper on the "Winter climate of some of our English seaside health resorts,"[1] that the material available was very scanty, and thus the necessity for a good organisation of a simple set of meteorological observations at a large number of our seaside and inland resorts was made evident to him. It was on the late Doctor's request that he (Mr. Bayard) had undertaken to work up the climatological results published in the *Meteorological Record* for the ten years 1881 to 1890. The reductions had been presented in the form adopted in his paper in order that they might afford a good working foundation for any one who might desire to make any use of the results in the future.

---

[1] *Quarterly Journal*, Vol. IV. p. 111, 1878.

ENGLISH CLIMATOLOGY, 1881-1890.

MAP SHEWING THE STATIONS OF THE ROYAL METEOROLOGICAL SOCIETY.



George Philip & Son London & Liverpool.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
18 APR 93
LIBRARY